











# SWIMMING SIMPLIFIED



BY  
LYBA AND NITA SHEFFIELD

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## DEDICATION

Our simplified swimming text we dedicate to you,  
Beginner, swimmer, and teacher, too.



## INTRODUCTION

The purpose of this text book is to simplify the learning and teaching of swimming from a scientific point of view. Our further objective has been to arrange a series of lessons in their logical progression to meet the demands of schools, playgrounds, clubs, and aquatic centers. The text has been graduated to serve the needs of beginners and swimmers, and a special section upon the method of procedure for mass instruction and class management has been arranged for teachers of swimming. We have avoided a detailed and technical analysis of all swimming strokes, featuring only the fundamental ones necessary in the logical progression of swimming.

A lengthy dissertation might be written regarding the values of swimming. However, it is sufficient to state that it is one of the most popular and pleasurable of athletic activities; from a physiological standpoint it is one of the most healthful exercises for developing the body symmetrically; swimming is necessary from a utilitarian standpoint because it serves as a means of saving life.

A swimming and life-saving test should be one of the graduation requirements in every institution of learning from the elementary through the advanced. Instruction should not be limited to university students, but it is imperative that the youth receive training in swimming and in life-saving. The leading educators, directors of physical education, aquatic authorities, and members of the medical profession realize that in the near future this demand must be met. This work is truly applied physical education.

The following are a few of the endorsements on "Swimming Simplified" received from some of the leading educators and swimming authorities:

"In my opinion your book deals with the subject in a most scientific and thorough manner. In learning to swim it is especially important that the novice gain confidence at the start. Proper control of the respiration and balance are essential to confidence in the water. Your plan for preliminary instruction in these matters through dry land and other drills and your careful attention to the laws of natural progression are indicative of the scientific study you have made of this sport. Allow me to congratulate you and your sister and wish you the success you deserve in getting your book before the public."

FRANK KLEEBERGER,  
*Director of Physical Education,  
University of California.*

"I have read the Misses Sheffield's book entitled 'Swimming Simplified,' and during the Summer Session of the University of California I observed Miss Nita Sheffield give instructions in swimming. The contents of their book are the result of considerable experience in swimming and coaching the subject to individuals and classes. The book is arranged from a pedagogical as well as a practical standpoint, and contains considerable material for advanced swimmers and instructors, yet is very simple for beginners. It should be in every physical director's library, and in the hands of everyone who is desirous of learning to swim, or of improving his strokes and success in water."

A. D. BROWN, M. D.,  
*Director of Physical Education,*  
*University of California Summer Sessions.*  
*Director of Physical Education,*  
*Stanford University.*

"I am delighted to possess your publication, 'Swimming Simplified,' which I believe is an excellent contribution to swimming. The three parts which deal with the actual teaching and learning of swimming, seem to me to be mighty good."

E. B. DE GROOT,  
*Director of Physical Education,*  
*San Francisco Schools and Playgrounds,*  
*Boy Scout Executive, Los Angeles.*

"I wish to express my appreciation for the book, 'Swimming Simplified,' that you sent to me some time ago. I have looked it over very carefully and have compared it with other publications on this subject, and I feel that it is the best of its kind in print. You have organized your material in a most satisfactory way; the descriptions and directions are very clearly stated; and your cuts are the best that I have ever seen for this subject. Your book should prove a most valuable help for teachers of Physical Education, specialists in swimming, and for individuals who are interested in perfecting their strokes."

MISS RUTH ELLIOTT,  
*Head of Department of Physical Education,*  
*University of California.*

"It does, indeed, seem that you and your sister have established the one simple, straightforward way of teaching swimming. I have noticed you and your work for two years or more and am satisfied that you are good teachers and worthy of recommendation as such."

BENJ. IDE WHEELER,  
*Former President of the*  
*University of California.*

"I appreciate the copy of your 'Swimming Simplified,' written by yourself and your sister. I remember very well your activity here at the University and once had the pleasure of seeing you both swim. Your book seems to me a most practical manual. I thoroughly believe in swimming for women. It is one sport in which they have every prospect of surpassing men, for they can remain longer in the water without chill and have greater buoyancy. It is a sport, too, which women can indulge in without fear of suffering bodily harm, one that develops courage and character, and that is useful in the highest degree. I am proud of the fact that all three of my daughters swim, and I wish that every girl might learn."

DAVID P. BARROWS,  
*President, University of California.*

"I have read 'Swimming Simplified' carefully three or four times and the more I read it the more I am impressed with its value. Knowing your well-established ability as swimmers, your knowledge of girls and how to discipline them, to say nothing of your ability to impart instruction in swimming, I feel assured that with the additional study of this book every young lady in San Francisco would be made an expert swimmer in a short while.

"To say that I believe in swimming for girls is putting it mildly. If I had my way I would have included it in the school curriculum and make it obligatory for every boy and girl in the elementary and high schools to learn swimming, not alone on account of its pleasant recreative features, but more particularly because of the fact that it is such a health-giving sport."

GEORGE D. GALLAGHER,  
*President Board of Education,  
City and County of San Francisco.*

"I wish to say that after reading the contents carefully, I noticed that your methods of instructions are very well laid out. Therefore I would hardly give any criticisms, and an edition like this so carefully worked out would certainly tend to enhance the success of the coming swimmers."

H. H. KRUGER,  
*World's Champion Back Stroke Swimmer.*

"It is well known that the difficulties of teaching swimming by written lessons are very great, as actual practice proves the more valuable. However, the authors of this book have set forth an excellent system which

will greatly aid the swimmer who follows it, and facilitate his progress. I consider 'Swimming Simplified' the best condensed form that has been published."

ERNST BRANDSTEN,  
*Instructor of Swimming,*  
*Stanford University, California.*

"A new science of swimming, which the Sheffield Sisters hope to have taught in all schools, was responsible for the remarkable showing made by the University girls. The Sheffield Sisters both hold swimming records. Both have swum the Golden Gate. They are also experts at life saving and resuscitation. They had advanced pupils in diving and expert swimming at the University, but their hobby is teaching beginners how to swim by such a method that they will never understand how a person can sink.

"They have written a text book which sets forth all land drills in swimming. They hope to have this adopted in the schools so that children will learn to swim before they have a chance to acquire a fear of the water."—*San Francisco Examiner.*

The following are a few of the comments received from five hundred students in our summer session courses:

"The book entitled 'Swimming Simplified' is as much a key to swimming as Webster's Dictionary is to the English language. Perfect in every detail, and if one would learn swimming, simply study the rules therein."

MARY BERGER, *Intermediate Swimmer.*

"Anyone who has never been near the water could learn to overcome the fear of water and how to swim by following the instructions given and studying the pictures illustrating each exercise."

BERTHA PARKER, *Beginner.*

"The book entitled 'Swimming Simplified,' by Lyba and Nita Sheffield is especially fine as a text book or complete guide for a scientific course in swimming. It is unique in its simplicity and force."

HARRIET JOHNSON, *Advanced.*

"I have tried to learn to swim for the past five years, and here in five weeks I have learned more about it than in all those years. The book with its explicit instructions analyzing each stroke to every detail, together with the irresistible personality of the instructor, does the work. I should say this is the last word in scientific swimming instruction."

ELSE M. GURBER, *Beginner.*

"Originality, accurate knowledge and keen comprehension of the exact physiological and psychological experiences of the beginner, is dominant in the book, 'Swimming Simplified.' It does simplify swimming, making it so clear that only intelligence is needed for comprehension."

ALEXANDRIA MACKIE, *Beginner*.

"The book has been a great aid in teaching me to swim. The words and language are such that any child could master swimming from the book. The book is the most comprehensive on the subject of any I have ever read."

EVELYN BARBER, *Beginner*.

"This book has made it possible to think through the strokes so that one may control one's body when in the water, which is infinitely better than trying to learn without knowing so definitely what one is to do. The explanations are wonderfully clear. The book is a most satisfactory treatise on swimming because the different points to be mastered are so clearly stated and placed in such definite, easily comprehensible form."

MINERVA ANDERSON, *Intermediate Swimmer*.

"The book has enabled me to do something in four weeks, that I have been trying years to do. It gives the science of swimming in simplified progressive order."

MRS. T. ROOPER, *Intermediate Swimmer*.

"'Swimming Simplified' is the most complete, easily understood swimming manual ever published."

ROBERTA FISHER, *Advanced Student*.

"Anyone following the directions in the book conscientiously could learn to swim without any personal help."

CAROLYN BLOSER, *Beginner*.

"The simple logical sequence of 'Swimming Simplified' makes it invaluable for individual instruction in swimming. If faithfully followed, one should learn to swim without a teacher."

MINNIE M. HILDUCH, *Beginner*.

## CONTENTS

	PAGE
I. THE METHOD OF PROCEDURE IN LEARNING OR TEACHING	
SWIMMING .....	13
The Method of Procedure for Men or Boys Over Twelve Years of Age.....	13
The Method of Procedure for Women and Girls Over Twelve Years of Age.....	14
The Method of Procedure for Children from Six to Twelve Years of Age.....	14
II. THE BEGINNER'S FIRST LESSONS.....	19
First Steps in Overcoming the Fear of the Water.....	19
Learning to Breathe Correctly.....	20
Body Balance .....	23
III. ANALYSIS OF THE VARIOUS SWIMMING STROKES.....	43
The Elementary Back Stroke.....	43
The Sheffield Sculling Stroke .....	51
The Under-Arm-Side-Stroke .....	56
The Single-Over-Arm-Side-Stroke .....	64
The Trudgeon or Double-Over-Arm-Stroke.....	69
The Trudgeon-Crawl .....	76
The Preliminary-Crawl .....	80
The Crawl .....	84
The Australian-Crawl .....	93
The Racing-Back or Alternate Over-Arm-Back-Stroke...	93
The Breast Stroke .....	98
IV. RACING TURN—TREADING WATER—PLUNGE FOR DISTANCE....	105
V. DIVING .....	109
The Rudiments of Diving.....	109
Elementary Diving .....	110
Advanced Diving .....	114
VI. LIFE SAVING .....	121
The Method of Procedure for an Actual Rescue.....	122
Preliminary Live Saving Drills.....	128
The Break and Carry Methods—Land Drills.....	130
The Break and Carry Methods—Water Drills.....	137
Schäfer Method of Resuscitation.....	138
Dr. Sheffield's Method of Resuscitation.....	140
VII. THE SAFETY VALVE AND THE SWIMMING AND LIFE-SAVING TESTS	145
VIII. WATER SPORTS .....	150
IX. SUGGESTIONS TO INSTRUCTORS.....	157

LIST OF ILLUSTRATIONS

	PAGE
Fig. 3—First Steps in Overcoming the Fear of the Water. Figs. 1 and 2—Learning to Breathe Correctly. Figs. 4 and 5—Body Balance. Face submerged-floating, first position.....	21
Body Balance. Figs. 1 and 2—Warming-up exercise—the crawl-kick. Figs. 3, 4 and 5—Land drill for attaining standing position from face-submerged-floating. ....	25
Body Balance. Fig. 1—Face-submerged-floating, second position. Figs. 2 and 3—Start and glide of the face-submerged-push-off. Fig. 4—True floating, first position .....	29
Body Balance. Figs. 1, 2 and 3—Land drill for attaining standing position from true floating. Fig. 4—Application of the land drill in the water. Figs. 5 and 6—Class drill for assuming and regaining standing position from true floating.....	33
Body Balance. Fig. 1—True floating, second position. Figs. 2 and 3—Start and glide of the side-push-off. Figs. 4 and 5—Start and glide of the back-push-off. Fig. 6—Floating arms vertical.....	37
The Elementary Back Stroke. Figs. 1, 2 and 3 illustrate counts One! Two! and Three! of the land drill. Figs. 4, 5 and 6 illustrate counts One! Two! and Three! of the water drill.....	45
The Elementary Back Stroke. Figs. 2 and 3—Class drills. Fig. 4—Sculling. ....	49
The Sheffield Sculling Stroke. Figs. 1 and 2 illustrate counts One! and Two! of the land drill. Figs. 3 and 4 illustrate counts One! and Two! of the water drill. Figs. 5 and 6—Class drill.....	53
The Under-Arm-Side-Stroke. Figs. 1, 2, 3 and 4 illustrate counts One! and Two! of the land drill. Figs. 5 and 6—Class drill.....	57
The Under-Arm-Side-Stroke. Fig. 1—The glide. Fig. 2—Finish of count One! Fig. 3—Finish of count Two! Fig. 4—Analysis of the scissor-kick. Fig. 5—Class in starting position. Fig. 6—Class swimming under-arm-side-stroke. ....	63
The Single-Over-Arm-Side-Stroke. Fig. 1 illustrates the first part of count One! Fig. 2—Class drill illustrating first part of count One! Fig. 3—Finish of the upper arm pull. Fig. 4—Recovery of the upper arm. Fig. 5—Catch position of the upper arm.....	67
The Double-Over-Arm or Trudgeon-Stroke. Figs. 1, 2, 3 and 4 illustrate counts One! and Two! of the land drill. Fig. 5—Class swimming trudgeon-stroke .....	71
The Double-Over-Arm or Trudgeon-Stroke. Fig. 1—Upper arm in finish position. Fig. 2—Upper arm in recovery. Fig. 3—Upper arm in catch position. Fig. 4—Upper arm pulling. Fig. 5—Beginning of count One!.....	73
The Crawl. Fig. 1—Starting position, also showing upper arm in finish position. Fig. 2—Upper arm in recovery. Fig. 3—Upper arm in catch position. Fig. 4—Upper arm pulling.....	85

- The Crawl. Fig. 1—Upper or left arm in catch position. Fig. 2—Upper arm pulling. Fig. 3—Upper arm recovering. Fig. 4—Front view of the upper arm recovering. Fig. 5—Upper arm pulling... 87
- The Racing Back or Alternate Over-Arm-Back-Stroke. Figs. 1, 2, 3 and 4 illustrate counts One! Two! of the land drill. Fig. 5—Catch position of the right arm. Fig. 6—Recovery of right arm.. 95
- The Breast Stroke. Fig. 1—Starting position. Figs. 2, 3 and 4 illustrate counts One! Two! and Three! of the land drill..... 99
- The Breast Stroke. Fig. 1—Starting position. Figs. 2, 3 and 4 illustrate counts One! Two! and Three! of the water drill..... 103
- Racing Turn. Fig. 1—The touch. Fig. 2—Body turn. Fig. 3—Push-off. Fig. 4—The touch. Fig. 5—The push-off. Fig. 6—The glide 107
- The Rudiments of Diving. Figs. 1 and 2—Sitting dive, starting position and dive in. Fig. 3—Kneeling dive, starting position. Figs. 4 and 5—Standing dive, starting position and dive in..... 111
- Elementary Diving. Figs. 1 and 2—Standing dive with spring, starting position and in. Fig. 3—Starting position for a plain dive. Figs. 4 and 5—Racing dive—starting position and in..... 113
- Class Drill in Diving. Fig. 1—Land drill for diving. Figs. 2 and 4—Starting positions for rudimentary diving. Fig. 3—Starting position for elementary diving..... 115
- Advanced Diving. Fig. 1—Working the board. Fig. 2—Swan dive. Fig. 3—Back dive. Fig. 4—Jack-knife dive..... 117
- Life-Saving Release Methods—Land Drills. Fig. 1—Wrist grasp. Fig. 2—Break. Fig. 3—The body turn and hold after release. Fig. 4—Front neck grasp. Fig. 5—Break..... 123
- Life-Saving Release Methods—Land Drills. Fig. 1—Body grasp. Fig. 2—Break. Fig. 3—Land carry. Fig. 4—Rear neck grasp. Fig. 5—Break. .... 127
- Life-Saving Release and Rescue Methods—Water Drills. Fig. 1—Wrist break. Fig. 2—Front neck break. Fig. 3—Rear neck break. Fig. 4—Cramp or fatigued persons carry. Fig. 5—Head carry.. 129
- Life-Saving Rescue and Resuscitation Methods. Fig. 1—Under arm carry. Fig. 2—Chest carry. Fig. 3—Side head carry. Figs. 4 and 5—Schäfer method resuscitation..... 133
- Life-Saving Release Methods—Land Drills. Fig. 1—Wrist grasp. Fig. 2—Neck grasp. Fig. 3—Side carry. Fig. 4—Body turn and hold after the release. Fig. 5—Body break. Fig. 6—Rear neck grasp ..... 135
- Life-Saving Rescue and Resuscitation Drills. Fig. 1—Head carry. Fig. 2—Under arm carry. Fig. 3—Schäfer method of resuscitation. Fig. 4—Under arm carry..... 139
- An Actual Rescue. Fig. 1—The alarm. Fig. 2—Lowering the boat. Fig. 3—To the rescue. Figs. 4 and 5—Dr. Sheffield illustrating his method of resuscitation..... 141
- Fig. 1—George Freeth, world's champion surf-board rider. Fig. 2—George Freeth with his mile-a-minute life-saving apparatus..... 143

## I

THE METHOD OF PROCEDURE IN LEARNING OR  
TEACHING SWIMMING

It is impossible to advocate one method of instruction adaptable to all, because of the physiological and psychological differences in men, women, and children. Adapt the stroke to the individual and not the individual to the stroke.

Most instructors advocate that the beginner's first lesson should consist of crawl, breast, or side stroke. By such a method, the beginner, in addition to learning the already complicated stroke, must overcome the fear of the water, learn to breathe and balance the body.

Our experience in teaching men, women, and children has proven the following methods of procedure most satisfactory for individual or mass instruction. As a foundation for learning to swim it is imperative that the novice first overcome the fear of the water; second, that he learn to breathe correctly; third, that he learn to balance the body. Having learned to balance the body in the horizontal position, the natural and logical progression for the great majority is the elementary back stroke. Furthermore, it serves as a safety-first measure when the novice becomes frightened or fatigued.

**The Method of Procedure for Men or Boys Over Twelve Years of Age**

## GROUP 1.

For men and boys who are heavily muscled, but who have limited body buoyancy, and whose objectives are speed swimming and a knowledge of the fundamental strokes necessary in life-saving, this is the best method of procedure:

- (1) The Beginner's First Lessons, Chapter II.
- (2) The Preliminary Crawl.
- (3) The Elementary Back Stroke is advisable as a safety-first measure.

## GROUP 2.

For men and boys who float easily, are not heavily muscled, and whose objective is acquiring the correct form in the various swimming strokes and a knowledge of life-saving, this is the best method of procedure:

- (1) The Beginner's First Lessons, Chapter II.
- (2) The Elementary Back Stroke.
- (3) The Sheffield Sculling Stroke.

- |                                      |                                       |
|--------------------------------------|---------------------------------------|
| (4) The Crawl.                       | (4) The Under-Arm-Side-Stroke.        |
| (5) The Racing Back Stroke.          | (5) Single-Over-Arm-Side-Stroke.      |
| (6) The Trudgeon-Crawl.              | (6) The Trudgeon.                     |
| (7) The Trudgeon.                    | (7) The Trudgeon-Crawl.               |
| (8) The Single-Over-Arm-Side-Stroke. | (8) The Crawl.                        |
| (9) The Under-Arm-Side-Stroke.       | (9) The Racing Back or Breast Stroke. |

### The Method of Procedure for Women or Girls Over Twelve Years of Age

#### GROUP 3.

For muscular athletically inclined women or girls over twelve years of age the method of procedure is the same as that given in Group 1.

#### GROUP 4.

For the great majority of women or girls over twelve years of age, the method of procedure is the same as that given in Group 2.

### The Method of Procedure for Children From Six to Twelve Years of Age

In teaching little folks to swim it is first necessary to inspire them with confidence by developing their initiative and courage through play. All children should be taught the necessary preliminary steps in overcoming the fear of the water, learning to breathe and balance the body. However, the factors determining the first stroke to be used are: Age, weight, sex, build, and the child's natural inclinations. Those who are plump and small boned, as is the case with most girls and some boys, should be taught the seal or elementary back stroke. Most boys and some girls are muscular and heavy boned, and consequently float low in the water, therefore, they should be taught the dog paddle or preliminary crawl.

After the girls have learned the elementary back stroke, they should proceed to the under-arm-side stroke and then follow the progression given in Group 2.

After the boys have learned the dog-paddle they should progress to the elementary back stroke as a safety-first measure, then follow the progression given in Group 1.

## THE CHILDREN'S FIRST LESSON

## 1. The Bobbing Seals.

## EXERCISE 1. SEALS BOBBING THEIR HEADS.

Duck the heads, then raise them.

## EXERCISE 2. SEALS LOOKING FOR FISH.

Duck the heads, open the eyes, and look for objects.

For Particulars refer to Chapter II. First Steps in Overcoming the Fear of the Water, exercises one, two, three, and four. Also refer to instructors' note, page 161.

## 2. The Seals Coming Up for Air.

## EXERCISE 1. THE SEALS BREATHING.

Breathe in through the mouth above water, breathe out through the nose under water. Refer to Chapter II, Learning to Breathe Correctly.

## 3. The Seals Float, Glide, and Dive.

## EXERCISE 1. SEALS FLOATING AND RESTING.

Grasp the railing, breathe in, duck the head, and lie flat on the water surface, body straight. Refer to Chapter II. Body Balance, exercise one.

## EXERCISE 2. SEALS FLOATING AND KICKING LEG FLAPPERS.

Grasp the railing; lie flat on the water; kick legs up and down, knee straight, toes pointed. Refer to Chapter II. Body Balance, exercise two.

## EXERCISE 3. SEALS STAND AFTER FLOATING.

The seal has been floating and now he wants to stand.

He straightens his body and walks out on the land.

Grasp the railing; duck the head; quickly bring the arms down to the bent knees; place the feet on the bottom; stand. Refer to Chapter II. Body Balance, exercise three.

## EXERCISE 4. SEALS FLOATING AND RESTING.

Take the same position as in exercise 1; then let go of the railing; float; stand. Refer to Chapter II. Body Balance, exercise four.

**EXERCISE 5. SEALS GLIDING AWAY FROM ROCKS.**

Place foot against side of tank, arms forward; inhale; duck the head; push off; glide; then stand. Refer to Chapter II, Body Balance, exercise five.

**EXERCISE 6. SEALS GLIDE AND KICK LEG FLAPPERS.**

This position is the same as described in exercise five, but during the glide, kick the legs up and down, knees straight, toes pointed; then stand. Refer to Chapter II. Body Balance, exercise six.

**EXERCISE 7. SEALS FLOATING ON BACK.**

Stand, back to side of tank; grasp railing; place head back; straighten body, and bring feet to surface; then stand. Refer to Chapter II. Body Balance, exercise seven.

**EXERCISE 8. SEALS STAND AFTER FLOATING.**

This starting position is the same as described in exercise seven. Then bend the knees upward; inhale; bend the body forward and duck the head; scoop the arms forward; place the feet on bottom of pool; stand. Refer to Chapter II. Body Balance, exercise eight.

**EXERCISE 9. SEALS FLOATING ON BACK, ARM FLAPPERS TO SIDE.**

Lie flat in the water; float with arms extended sideways; stand. Refer to Chapter II. Body Balance, exercise nine.

**EXERCISE 10. SEALS GLIDE ON SIDE.**

Grasp railing; push off; glide, and stand. Refer to Chapter II. Body Balance, exercise ten.

**EXERCISE 11. SEALS TURNING IN THE WATER.**

Float on back; turn over and float on the face and vice versa. Refer to Chapter II. Body Balance, exercise eleven.

**EXERCISE 12. SEALS GLIDING AWAY FROM ROCKS ON BACK.**

Grasp railing; place feet against pool; inhale; slowly and easily push away; glide; stand. Refer to Chapter II. Body Balance, exercise twelve.

## THE PRELIMINARY STROKE FOR GIRLS

### The Seal Stroke or Elementary Back Stroke

#### 1. Seals Swimming on Their Backs, Using Their Arm Flappers.

##### LAND AND WATER DRILLS

Up easy, out, and full.

You swim when you pull.

Like the seals using their arm flappers, we slowly bring the hands up to the shoulders, out to the side, and then forcibly pull down to the body.

#### 2. Seals Swimming on Their Backs, Using Their Leg Flappers.

Up easy, out, and kick.

You swim when your flappers click.

Like little seals using their leg flappers, we slowly bend our knees, extend the legs to the side, and then forcibly bring them together.

#### 3. Seals Swimming on Their Backs, Using Their Arm and Leg Flappers.

Arms and legs up easy and full,

You swim when you pull.

Like a little seal on his back,

You swim when your flappers crack.

For a detailed description refer to Chapter II, the Elementary Back Stroke. Page 43.

## THE PRELIMINARY STROKE FOR BOYS

### The Dog-Paddle or Preliminary Crawl

#### 1. Little Dogs Swimming, Using Their Front Paws.

##### LAND AND WATER DRILLS

Circle over and pull under.

Try it, you'll be a little wonder.

Start an alternating arm paddle by forcibly pulling deep down and under with the right arm, at the same time circling over and forward with the left. Don't forget to bend the elbows and keep the hands low.

## 2. Little Dogs Swimming, Using Their Back Legs.

Knees straight, toes pointed, now kick.

The thrash must be short and quick.

Start with the arms in front of the head, body straight, inhale, duck the head, kick the legs, then stand.

## 3. Little Dogs Swimming Using Their Front and Back Legs.

Circle over and pull under.

At the same time kick like a little wonder.

For a detailed analysis refer to Chapter III, The Preliminary Crawl, Page 80.

## II

## THE BEGINNER'S FIRST LESSONS

## 1. First Steps in Overcoming the Fear of the Water.

In learning to swim, the beginner must first overcome the dread of entering the water and of submerging the face. The tendency of the un-instructed is to frantically inhale the water and stiffen the body. To overcome this fear, practice the following exercises:

**LAND DRILL**

## EXERCISE 1.

Starting position—Take!

The starting position for exercises one, two and three is as follows: Use a large bowl filled with water, place the right side of the face in the water, mouth raised sufficiently to clear the surface.

(1) Inhale!

Inhale through the mouth, then close it.

(2) Nose—Hold!

Hold the nostrils firmly with the fingers and close the eyes.

(3) Face—Submerge!

Hold nostrils; submerge the face and hold the breath for five counts.

(4) Starting position—Take!

## EXERCISE 2.

(1) Inhale!

Same as (1), exercise one.

(2) Face—Submerge!

Omit holding the nostrils then submerge the face.

(3) Eyes—Open!

After the face is submerged open the eyes and hold the breath for five counts. Fig. 3. Page 21.

(4) Starting position—Take!

## EXERCISE 3.

(1) Inhale!

Same as (1), exercise one.

(2) Face—Submerge!

Submerge the face, open the eyes, and hold the breath from ten to fifty seconds.

IMPORTANT NOTE.—Gradually increase holding the breath up to fifty seconds. The length of time one is able to hold the breath depends upon the individual's breath control and lung capacity.

## WATER DRILL

## EXERCISE 4.

Starting position—Take!

Enter the shallow end of the pool, grasp the railing or side of the tank by means of the over-hand grasp, arms extended. Submerge the shoulders, and place the right side of the face in the water, mouth raised sufficiently to clear the surface.

(1) Practice exercises one, two and three of the land drill, until all fear and discomfort of submerging the face is overcome.

## DON'T

**Don't** submerge the face with mouth open, because the beginner is apt to swallow water.

**Don't** inhale while face is submerged, because this causes choking.

**Don't** forget to open the eyes when the face is submerged, as this gives confidence.

## II. Learning to Breathe Correctly.

It is impossible to swim any stroke successfully and scientifically without knowing how to breathe correctly. This consists of repeated deep inhalations through the mouth and forcible exhalations through the nose. Practice this drill until breathing in this new manner becomes natural and rhythmical.

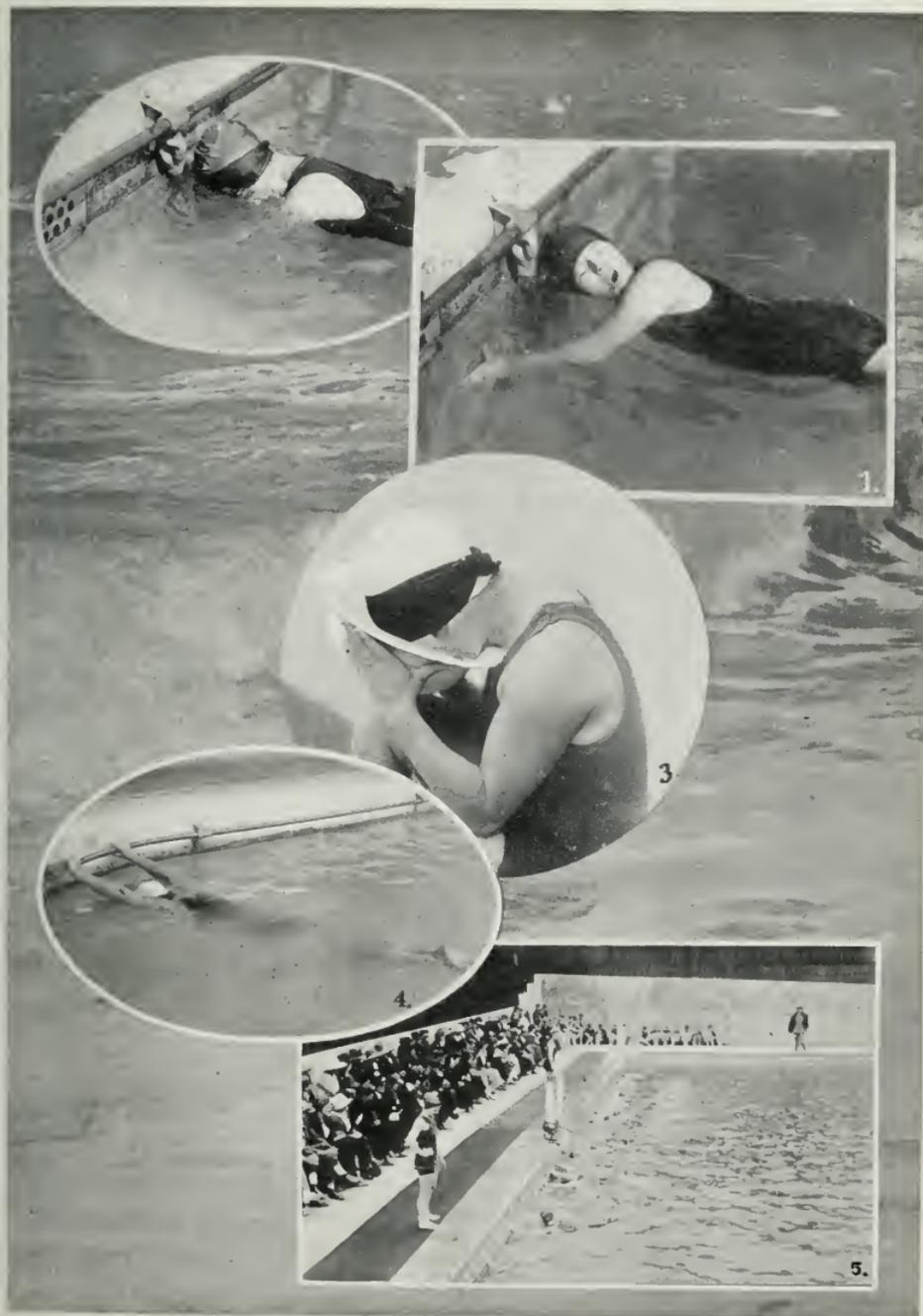


Fig. 3. First Steps in Overcoming the Fear of the Water. Figs. 1 and 2. Learning to Breathe Correctly. Figs. 4 and 5. Body Balance. Face-submerged-floating—first position.

Inhaling and exhaling through the mouth has proven unsatisfactory, because the novice is apt to inhale water when the face is submerged, thus causing choking. While inhaling through the mouth and exhaling through the nose prevents choking and gives one absolute control of breathing.

#### LAND DRILL

##### EXERCISE 1.

Starting position—Take!

Use a large bowl filled with water. Place the right side of the face in the water, mouth raised sufficiently to clear surface.

(1) Inhale!

Inhale through the mouth then close it.

(2) Face submerge—Exhale!

Submerge the face, then forcibly exhale most of the air through the nose, thereby blowing bubbles. Fig. 3. Page 21.

(3) Turn head—Exhale!

Turn the head as in starting position, exhale the remaining air forcibly through the nose, thus avoiding the unpleasant sensation of inhaling water.

Repeat the exercise. Then, without stopping or touching the face, continue rhythmically from five to fifty times.

#### WATER DRILL

##### EXERCISE 2.

Starting position—Take!

This starting position is the same as described in water drill, exercise four.

(1) Practice exercise one, of the above land drill for correct breathing until perfected. Figs. 1 and 2. Page 21.

Refer to instructors' note for exercises one, two, three and four, page 161.

#### DON'T

**Don't** raise the top of the head high out of the water when breathing, because this partially submerges the mouth and causes choking.

**Don't** forget to forcibly exhale the remaining air above water surface before the next inhalation, because it will prevent choking.

**Don't** attempt to breathe by lifting the head high out of the water and then submerging it, because it disturbs body balance. This fault must be avoided in all swimming strokes.

### III. Body Balance.

After the novice has overcome the fear of entering the water and is able to breathe correctly, the next step is learning to balance the body in various positions. Floating is body bouyancy and correct balance in the water. It is of value as a means of resting the body, is useful in case of cramp or fatigue and in life saving. Floating is the beginner's safety valve. When frightened or fatigued float or scull. When the following thirteen exercises for body balance have been learned the beginner is ready for the first stroke.

#### EXERCISE 1. FACE-SUBMERGED-FLOATING. FIRST POSITION.

This demonstrates body bouyancy. If one takes a deep inhalation, then submerges the head, the feet will rise near the water surface. This is one of the easiest possible floating positions.

#### WATER DRILL

Starting position—Take!

Grasp the railing or side of the tank, arms extended; submerge the shoulders. Extend the legs, feet placed on the bottom of the pool, then raise the left leg to water surface.

(1) Inhale, head—Submerge!

Take a deep inhalation through the mouth, and submerge the head between the extended arms.

(2) Face-submerged-floating position—Take!

Raise the right foot, finishing with the feet together near water surface. Assume horizontal position, arms and legs extended, body relaxed. Hold this position for five counts. Figs. 4 and 5, Page 21.

(3) Standing position—Take!

Regain standing position by raising the head and placing the feet on the bottom of the tank.

**IMPORTANT NOTE.**—If the railing or side of the tank is high above the water, a correct face-submerged-floating position is difficult to assume, because of the raised arms and shoulders. In this case one would only be able to approximate this exercise.

Refer to instructors' note for Body Balance, exercise one, page 161.

### **DON'T**

**Don't** forget that a deep inhalation is necessary, as it increases body bouyancy.

**Don't** forget to take a deep inhalation before submerging the face, because the breath must be held for five counts, thus permitting the feet to rise near the surface.

**Don't** attempt the face-submerged- floating position without first extending the legs, otherwise it will be difficult for the feet to rise to the surface.

### **EXERCISE 2. WARMING-UP EXERCISE—THE-CRAWL-KICK.**

If the water is too cold, this exercise promotes circulation, also serves as a means of propelling the body through the water, and gives confidence to the novice.

### **WATER DRILL**

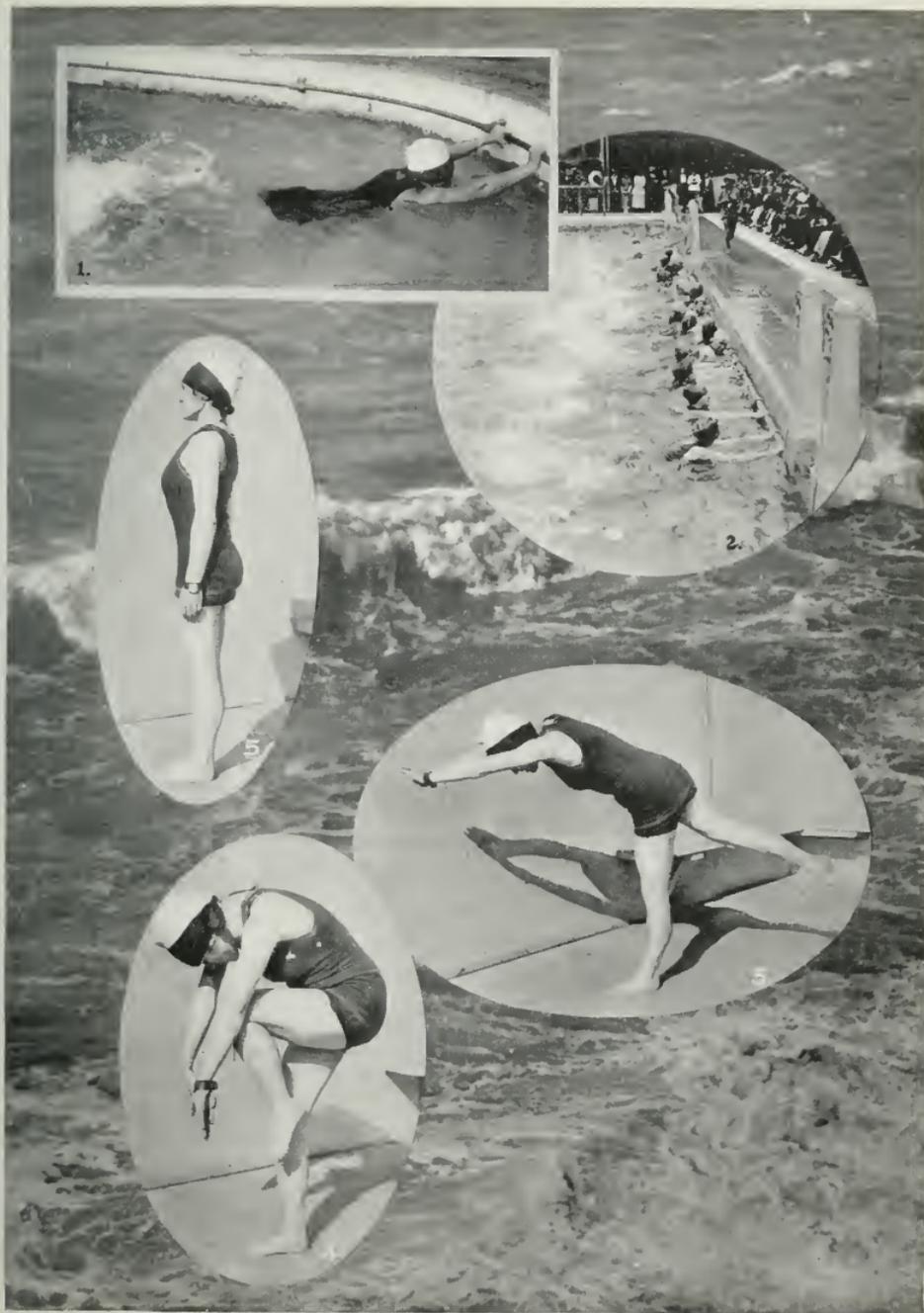
Starting position—Take!

Assume a correct face-submerged-floating position as described in the preceding exercise. Be careful to have the legs extended, knees almost touching, toes pointed, and ankles relaxed. Fig. 4. Page 21.

(1) Left leg—Kick!

(2) Right leg—Kick!

Practice the crawl kick, which consists of a series of quick alternate up and down leg thrashes of even length. The leg drive extends from the hips to the pointed toes, the thrash being about eight inches and not more than fourteen. At first work the legs slowly, and gradually increase the speed until a correct and easy rhythm is established. Be careful not to raise the feet above the water surface or noticeably bend the knees and ankles, as it impedes progress. Figs. 1 and 2. Page 25.



Body Balance. Figs. 1 and 2. Warming-up exercise—the crawl-kick. Figs. 3, 4 and 5. Land drill for attaining standing position from face-submerged-floating.

**DON'T**

**Don't** noticeably bend the knees and ankles, or raise the feet out of the water, because energy is lost.

**Don't** forget to point the toes and keep the knees close together, otherwise one would retard progress.

**EXERCISE 3. ATTAINING STANDING POSITION FROM FACE-SUBMERGED-FLOATING.**

The beginner usually finds it difficult to regain standing position once the feet are off the bottom of the pool. However, if this exercise is practiced carefully, it is a simple matter.

**LAND DRILL**

Starting position—Take!

Stand, body erect, arms to vertical, thumbs locked. Bend the body forward to the imaginary water line and raise the extended left leg to the rear. Fig. 3. Page 25.

(1) Left knee upward—Bend!

Bend the left knee, finishing with it close to the chest. Fig. 4. Page 25.

(2) Arms to side of body—Place!

Forcibly bring the extended arms down to the side of the body. Fig. 4. Page 25.

(3) Foot—Replace!

(4) Correct standing position—Take!

Practice this drill, first using left leg then the right until it is learned. Remember to keep the head down until the foot is placed on the floor. Fig. 5. Page 25.

**WATER DRILL**

Starting position—Take!

Assume a correct face-submerged-floating position, holding on to the railing.

(1) Knees upward—Bend!

Draw the knees well under the body.

## (2) Arms to the side of body—Place!

Let go of the railing and forcibly and quickly bring the extended arms down through the water, to the side of the body.

## (3) Feet—Replace!

Quickly straighten the legs, and place the feet on the bottom of the pool.

## (4) Correct standing position—Take!

Raise the head, and assume correct standing position.

**DON'T**

**Don't** raise the head from the water until the arms are brought down to the side of the body and the feet placed on the bottom of the tank, because this is necessary in obtaining the correct standing position.

**EXERCISE 4. FACE-SUBMERGED-FLOATING—SECOND POSITION.**

Having learned face-submerged-floating, while holding on to the railing, the beginner is ready for the second position, which demonstrates body buoyancy.

**WATER DRILL**

Starting position—Take!

Assume face-submerged-floating position, holding on to the railing. Fig. 4. Page 21.

## (1) Let—Go!

Let go of the railing, and float face-submerged holding the breath for five counts. Assume a horizontal position, arms and legs extended, body relaxed. Fig. 1. Page 29.

## (2) Up!

Then regain standing position as described in exercise three. Refer to instructors' note for Body Balance, exercise four, page 161.

**DON'T**

**Don't** attempt face-submerged-floating without first taking a deep inhalation, because this increases body buoyancy.

**Don't** attempt to push body away from the side of the tank, as it tends to sink the feet.

**Don't** attempt horizontal face-submerged-floating with the head raised high, because it sinks the feet.

**Don't** attempt to regain standing position immediately after letting go of the railing, because this is not a test of body bouyancy.

#### EXERCISE 5. FACE-SUBMERGED-PUSH-OFF.

After learning the above exercises the novice is ready for the first step in learning to swim, that is, the body in motion.

#### WATER DRILL

Starting position—Take!

Stand with the back to the side of the tank, shoulders submerged.

Extend the arms in front of the body, thumbs locked, resting on water surface. Then incline the body forward, at the same time keeping the hips well back against the side of the tank; place the sole of one foot against the side of the pool. Fig. 2. Page 29.

(1) Inhale, head—Submerge!

Take a deep inhalation through the mouth; submerge the face between the extended arms until the ears are covered. Fig. 2. Page 29.

(2) Push—Off!

Then quickly and forcibly push the body away from the side of the tank, by straightening the flexed leg, bringing the supporting leg into the extended position, heels and knees touching.

(3) Glide!

If executed correctly, the body will glide forward in the face-submerged-floating position, as far as the momentum of the push-off will permit, and as long as one is able to hold the breath. Fig. 3. Page 29.

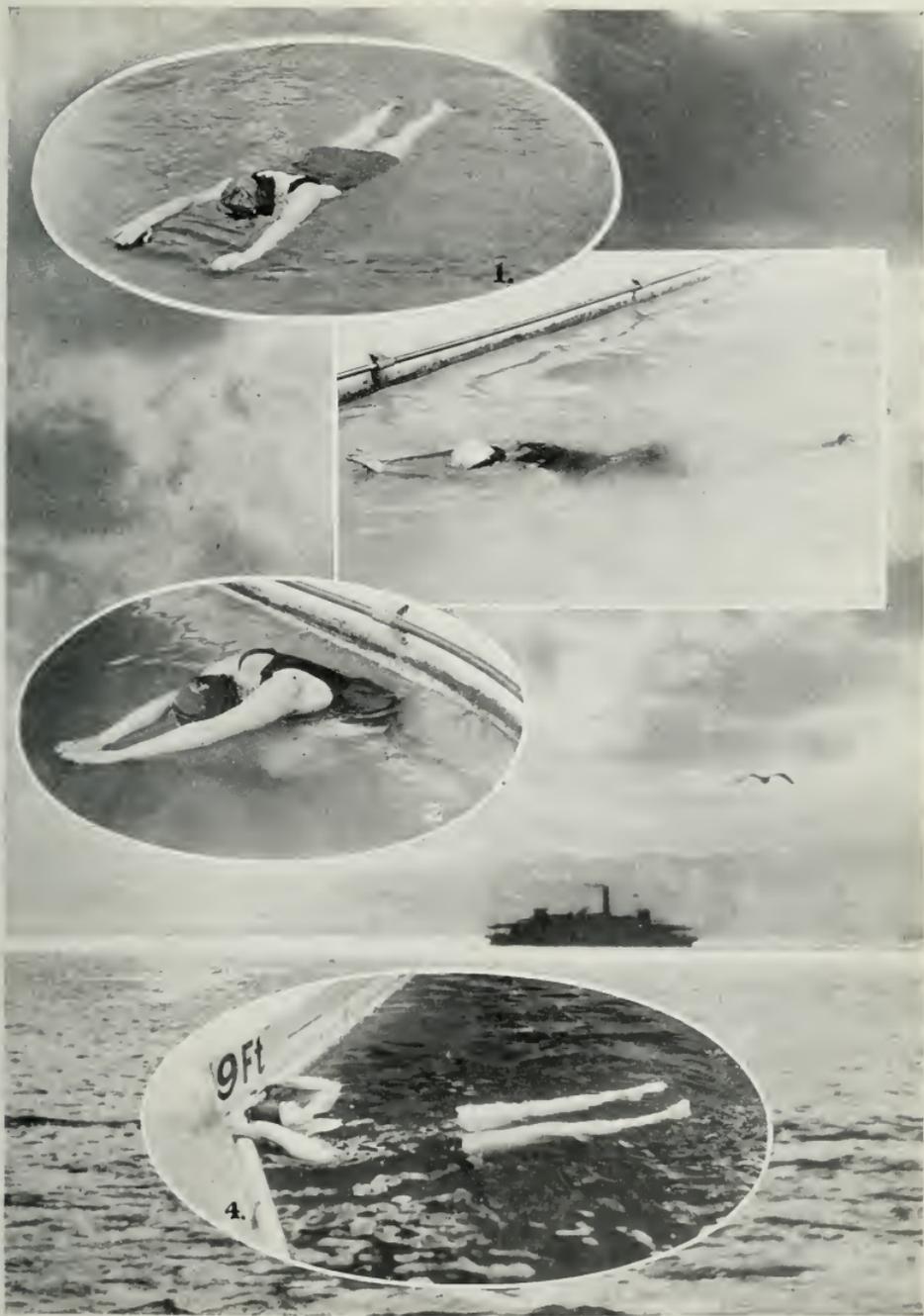
(4) Correct standing position—Take!

Regain standing position as described in exercise three.

Refer to instructors' note for Body Balance, exercise five, page 161.

#### DON'T

**Don't** attempt to push off without first taking a deep breath, because it decreases the glide.



Body Balance. Fig. 1. Face-submerged-floating—second position. Figs. 2 and 3. Start and glide of the face-submerged-push-off. Fig. 4. True floating—first position.

**Don't** attempt to push off with the head held high out of the water, because it sinks the feet.

**Don't** start with the body away from the side of the pool, because in this way momentum is lost in the push-off.

**Don't** attempt to push away slowly, because it limits the glide.

#### EXERCISE 6. FACE-SUBMERGED-PUSH-OFF WITH CRAWL-KICK.

This drill is valuable as a warming-up exercise and is the first step in propelling the body forward.

##### WATER DRILL

Starting position—Take!

The starting position for the push-off is the same as described in exercise five.

(1) Push-Off-Crawl-Kick.

After the push-off and during the glide, use a fast crawl-kick, as long as you are able to hold the breath. Regain standing position.

##### DON'T

**Don't** glide too far before beginning the crawl-kick, as one would not be able to hold the breath long enough during the glide and kick.

Refer to the "**Don't**" section of exercises three and five, under Body Balance.

#### EXERCISE 7. TRUE FLOATING—FIRST POSITION.

This is the beginners first lesson in acquiring Body Balance while on the back.

##### WATER DRILL

Starting position—Take!

Stand with back to the side of the tank, shoulders submerged. Grasp the railing by means of the overhand grasp, arms apart. Then raise the extended left leg to water surface.

(1) Inhale, head—Back!

Take a deep inhalation through the mouth, lower the head backwards until the ears are submerged.

## (2) True floating position—Take!

Raise the right foot, thereby finishing with the legs extended and apart, near water surface. At the same time assume a horizontal position by raising the chest and hips, body relaxed. Float in this position for a little while. Fig. 4. Page 29.

## (3) Standing position—Take!

Regain standing position by holding on the railing with one hand, submerging the head, bending the knees, then placing the feet on the bottom of the pool.

**IMPORTANT NOTE.**—If the railing or the side of the tank is high above the water, a correct true floating position is difficult to assume because of the raised arms and shoulders. In this case one would only be able to approximate the exercise.

**DON'T**

**Don't** attempt true floating position with the head held high, because this tends to sink the feet.

**Don't** stiffen the body when assuming correct floating position, because this is fatiguing and difficult.

**Don't** hold the breath or take short gasps, because greater buoyancy is attained through deep inhalations.

**Don't** assume the true floating position with body in a half sitting position, as the body will sink.

**EXERCISE 8. ATTAINING STANDING POSITION FROM TRUE FLOATING.**

Before learning true floating the beginner should know how to attain standing position.

**LAND DRILL**

Starting position—Take!

Stand, body erect, arms side horizontal, palms down. Fig. 1. Page 33.

(1) Left knee upward—Bend!

(2) Body forward—Bend!

(3) Head—Down!

(4) Arms forward—Scoop!

Quickly and forcibly bring the extended arms from the side horizontal position, back, down, finishing with the extended arms in front of the body, palms up. Figs. 2 and 3. Page 33.

- (5) Foot—Replace!
- (6) Correct standing position—Take!

### WATER DRILL

#### FIRST WATER DRILL.

Starting position—Take!

Stand in the shallow end of the pool, shoulders submerged. Arms extended side horizontal, palms down and resting on the water surface.

- (1) Left knee upward—Bend!
- (2) Inhale!
- (3) Body forward—Bend!
- (4) Head—Submerge!
- (5) Arms forward—Scoop!

Quickly and forcibly bring the extended arms from the side horizontal position, back and deep down through the water, finishing in front of the body, palms up.

- (6) Foot on bottom of pool—Place!
- (7) Correct standing position—Take!

#### SECOND WATER DRILL.

Starting position—Take!

Assume the true floating position holding on to the railing or the side of the tank as described in exercise seven. Then let go of the railing, finishing with the arms in the side horizontal position, palms down, extended legs slightly apart and relaxed. Hold this position for at least five counts. Fig. 1, Page 37.

- (1) Knees upward—Bend!  
Bring the knees up close to the body. Fig. 4, Page 33.

(2) Inhale!

(3) Body forward—Bend!

Bend the body forward by relaxing the back, thereby causing the hips to sink and the body to assume a sitting position. Fig. 4, Page 33.

(4) Head—Submerge!

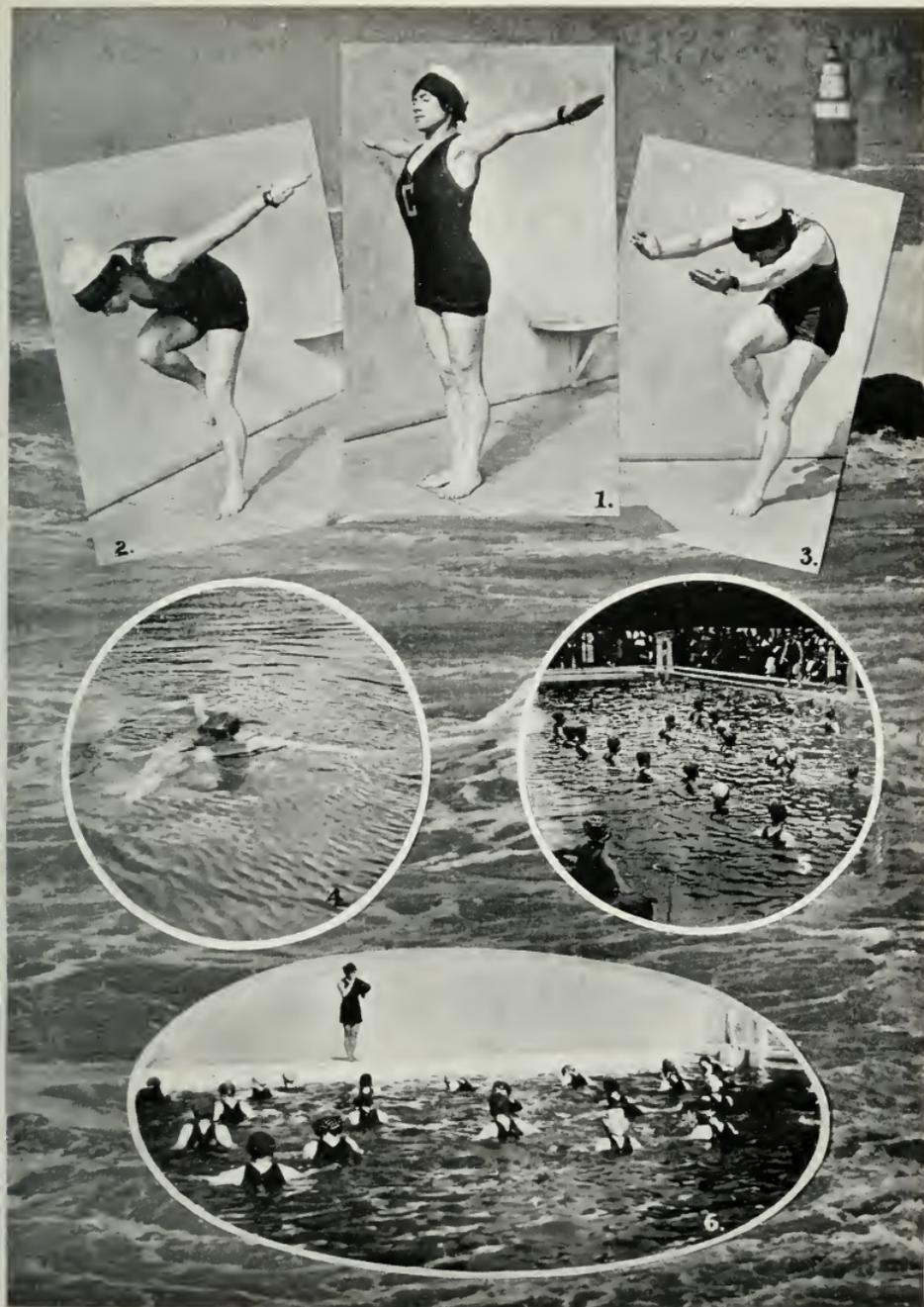
(5) Arms forward—Scoop!

Forcibly bring the arms down through the water, finishing with the extended arms in front of the body, palms up.

(6) Feet on bottom of pool—Place!

(7) Correct standing position—Take!

Practice this drill until it is executed correctly and with ease.



Body Balance. Figs. 1, 2 and 3. Land drill for attaining standing position from true floating. Fig. 4. Application of the land drill in the water. Figs. 5 and 6. Class drill for assuming and regaining standing position from true floating.

**IMPORTANT NOTE.**—After one has learned to swim and desires to attain the upright position while in deep water, he should practice the above exercise as given, but omit submerging the head and placing the feet on the bottom.

Refer to instructors' note, for Body Balance, exercise eight, page 162.

### DON'T

**Don't** attempt to stand with the knees and back held rigid, because it makes regaining standing position impossible.

**Don't** attempt to bring the arms forward without first submerging the head, because one is apt to stiffen the body and lose balance.

**Don't** forget to relax the body and keep the head forward and under water during this exercise, because it is necessary in regaining standing position.

### EXERCISE 9. TRUE FLOATING—SECOND POSITION.

True floating is of value as a means of resting the body and is useful in case of cramp and life-saving. In correct horizontal floating the head should be held well back, ears under the water, chin in, and the chest high, the arms and legs submerged and the body relaxed. The breathing should be natural and regular. Floating is the beginners safety valve. When frightened or fatigued, float or scull.

### WATER DRILL

Starting position—Take!

Stand, facing the side of the tank, shoulders submerged, arms in side horizontal position, palms down. Raise the extended left leg to water surface.

(1) Inhale, head—Back!

Inhale and slowly incline the body backward, placing the head in the water until the ears are submerged.

(2) True floating position—Take!

Raise the right foot, thereby finishing with the legs extended and together. At the same time assume horizontal position by raising the chest and hips, body relaxed. Float in this position for a little while. Fig. 1.  
Page 37.

(3) Standing position—Take!

Regain standing position as described in exercise eight. Practice this drill until it is executed correctly and with ease.

Refer to instructors' note for Body Balance, exercise nine, page 162.

### DON'T

**Don't** forget to breathe naturally, because deep inhalations give added bouyancy to the body and insure confidence.

**Don't** raise the arms high out of the water, because this sinks the body.

**Don't** relax the back, assuming a sitting position, because true floating is impossible.

**Don't** hold the body rigid while floating, because such a position is difficult and fatiguing.

### EXERCISE 10. ANALYSIS OF THE SIDE-PUSH-OFF.

It is essential to learn the side-push-off in order that the novice may control and balance the body while swimming on the side. This position is largely determined by the head.

### WATER DRILL

Starting position—Take!

Stand with the left side of the body towards the railing, shoulders submerged; grasp the railing with the left hand; extend the right arm in front of the body resting on the water surface, palm down. Place the right side of the head in the water; look back slightly over the left shoulder, mouth raised sufficiently to clear water surface, that is, chin up, top of head low. Assume the horizontal position of the body by placing the soles of the feet against the side of the tank as near water surface as possible, knees well flexed. Fig. 2, Page 37.

(1) Inhale!

(2) Push—off!

Quickly and forcibly push the body away from the side of the tank by extending the flexed knees; at the same time bring the extended left arm to the side of the body.

(3) Glide!

If the push-off is executed correctly, the body glides forward in the side-push-off position, exhale during the glide. Fig. 3, Page 37.

**IMPORTANT NOTE.**—Regain standing position as soon as momentum of the glide has ceased. If the body turns over on the face during the glide, it is because the head is held too far forward. If one turns on the back, it is because one is looking too far back over the left shoulder.

(4) Correct standing position—Take!

Regain standing position by quickly bending the head and body to the left, at the same time bringing both hands together in front of the body, then placing the feet on the bottom.

### DON'T

**Don't** attempt to push-off without first taking a deep breath, because it limits the glide.

**Don't** attempt to push-off with the head forward, as it will turn the body on the chest.

**Don't** attempt to push off with the head held too far back, as it will turn the body on the back.

**Don't** attempt to push away slowly, because it decreases momentum of the glide.

### EXERCISE 11. CHANGING BODY POSITIONS.

After the novice has learned to float with the face submerged and on the back, occasion may demand a change from one of these positions to the other, especially in deep water. It is equally important to change from either of these positions to the side. In order to have confidence and absolute control of the body these exercises must be learned.

### LAND DRILL

#### FIRST LAND DRILL.

**Changing Body Position from Face-Submerged-Floating to True Floating.**

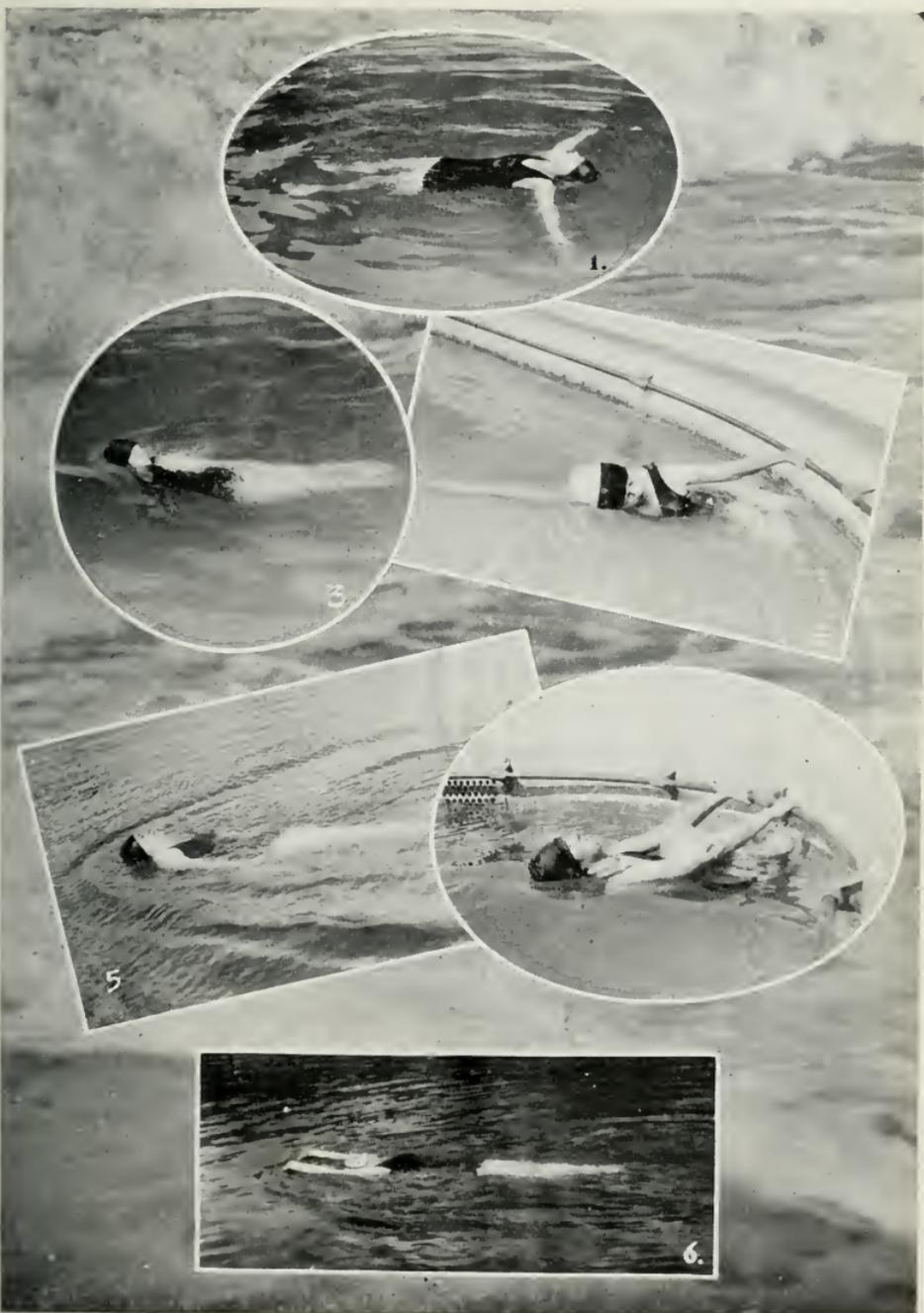
(1) Left arm pull and body—Turn!

Forcibly and quickly pull the extended left arm down (through the water) to the side of the body, at the same time quickly turn the head and body to the left.

(2) True floating position—Take!

Finish with the arms in the side horizontal position, palms down. Assume the true floating position for a short time.

**IMPORTANT NOTE.**—Execute counts One! and Two! quickly and as one continuous motion.



Body Balance. Fig. 1. True floating-second position. Figs. 2 and 3. Start and glide of the side-push-off. Figs. 4 and 5. Start and glide of the back-push-off. Fig. 6. Floating arms vertical.

**SECOND LAND DRILL.****Changing Body Position from True Floating to Face-Submerged-Floating**

Starting position—Take!

Assume correct true floating position.

(1) Left arm pull and body—Turn!

Forcibly and quickly pull the extended left arm down (through the water) to the side of the body, at the same time turn the head and body to the left.

(2) Face-submerging-floating position—Take!

Finish with the extended arms forward, thumbs locked. Assume the face-submerged-floating position for a short time.

IMPORTANT NOTE.—Execute counts One! and Two! quickly and as one continuous motion.

**THIRD LAND DRILL.****Changing Body Position from Face-Submerged-Floating to the Right Side**

Starting position—Take!

Assume correct face-submerged-floating position.

(1) Left arm pull and body—Turn!

Forcibly and quickly bring the extended left arm down (through the water) to the left side of the body. At the same time quickly turn the head and body to the left. The extended right arm remains in starting position, palm down (resting on the water surface.)

(2) Side floating position—Take!

Finish with the body on the right side.

(3) Standing position—Take!

Immediately regain standing position by quickly bending head and body to the left. Forcibly bring the right arm (deep down through the water) in front of the body until it meets the left, at the same time placing the feet on the bottom of the pool.

IMPORTANT NOTE.—Counts One! Two! and Three! should be executed quickly and as one continuous motion.

**FOURTH LAND DRILL.****Changing Body Position from True Floating to the Right Side**

Starting position—Take!

Assume a correct true floating position.

(1) Left arm pull and body—Turn!

Forcibly bring the extended left arm down (through the water) to the side of the body, and at the same time turn the head and body to the right. The extended right arm should assume a vertical position (resting on the water surface) palm down.

(2) Side push-off position—Take!

Finish in the body extended in the side position.

(3) Standing position—Take!

Immediately regain standing position as described in preceding drill.

**IMPORTANT NOTE.**—Counts One! Two! and Three! should be executed as one continuous motion.

**WATER DRILL****FIRST WATER DRILL.**

Starting position—Take!

Assume correct starting position necessary for each drill.

(1) Then practice the arm motions for the above land drills one, two three and four.

**SECOND WATER DRILL.**

Starting position—Take!

Assume the correct floating positions necessary for each drill.

(1) Then, practice the arm motions and body turns as described in the preceding land drills one, two, three and four.

Refer to the instructors' note, Body Balance, exercise nine, page 162.

**DON'T**

**Don't** attempt to change the body position without first taking a deep breath, as it requires time to make the body change.

**Don't** raise the arms high out of the water in changing the body position, as this tends to sink the body and make the turn more difficult.

**Don't** forget to turn with a quick and forcible head, arm, and body motion, because it is necessary for the novice to gain sufficient momentum in making a turn.

**Don't** attempt to turn with the body in a sitting position or the knees greatly flexed, because this hinders one in making the turn.

**Don't** forget to hold the correct starting position for a short time before and after the turn, because this gives greater confidence and control.

#### EXERCISE 12. ANALYSIS OF THE BACK PUSH-OFF.

After learning the above exercises the novice is ready for the first step in learning to swim on the back.

#### WATER DRILL

Starting position—Take!

Face the side of the tank; grasp the railing; submerge the shoulders. Place the soles of both feet against the side of the tank and as near water surface as possible. Fig. 4. Page 37.

(1) Inhale, and head—Back!

Take a deep inhalation through the mouth, place the head back in the water, ears submerged.

(2) Push-off!

Let go of the railing bringing both arms to the side of the body, at the same time push away from the side of the tank, by extending the flexed legs. Fig. 5. Page 37.

(3) Glide!

If executed correctly the body will glide forward in the true floating position. When the momentum of the glide has nearly ceased the arms should be slowly brought to the side horizontal position, as balance is more easily maintained, in this position. Fig. 5. Page 37.

(4) Starting position—Take!

Regain standing position as described in exercise eight.

#### DON'T

**Don't** throw the head too far back and arch the body backward, because this will direct the body's course toward the bottom of the pool.

**Don't**, on the other hand, hold the head too far forward and bend the body, sinking the hips, because this checks the forward glide.

**Don't** bring the arms high out of the water when pushing away, as this tends to sink the body.

### EXERCISE 13. ADVANCED WAYS OF FLOATING.

When you are able to float in the true floating position correctly, learn these more difficult floating positions as a means of giving confidence and control of the body.

#### WATER DRILL

##### FIRST WATER DRILL.

Horizontal Floating.

Starting position—Take!

Assume correct true floating position as described, in addition have the legs extended, heels and knees touching.

(1) Arms to vertical—Place!

Slowly change the arm position from side horizontal to vertical, thumbs touching, backs of the hands resting on the water surface. Hold this position for a little while. Fig. 6. Page 37.

(2) Hands on neck—Place!

Slowly change the arm position vertical to the arms flexed position, fingers touching the back of the neck.

(3) Arms at side—Place!

Slowly change the arms from the flexed position to the extended positions, palms touching the sides of the body. Fig. 5. Page 37.

##### SECOND WATER DRILL.

Vertical Floating.

Starting position—Take!

While in deep water assume correct true floating position.

(4) Head forward—Place!

Slowly assume the vertical floating position by permitting the head to come a little further forward, thus allowing the feet to sink. The position of the head in the water that is, forward or backward, greatly determines the lowering or raising of the feet.

Having learned the above exercises the novice is now ready to master the most simple of strokes, the Elementary Back Stroke or Preliminary Crawl.

Refer to instructors' notes, Body Balance, exercise thirteen, page 162.

### DON'T

**Don't** forget to breathe naturally, because deep inhalations insure confidence while floating and give added buoyancy to the body.

**Don't** attempt advanced horizontal floating with the head held high or forward, as this tends to sink the feet.

**Don't** raise the arms high out of the water, because this sinks the body.

**Don't** relax the back assuming a sitting position, because this sinks the body.

**Don't** hold the body rigid while floating, because this is fatiguing and difficult.

**Don't** forcibly change the arm positions, as this temporarily disturbs body balance.

**Don't** change the head position too quickly in vertical floating, as it may submerge the entire body.

## III

## ANALYSIS OF THE VARIOUS SWIMMING STROKES

In learning or teaching any one of the swimming strokes, the following cardinal points cannot be over emphasized.

(1) Breathe correctly and at the proper time.

(2) When breathing do not lift the head high out of the water but turn it to the side, raising the mouth sufficiently to clear the water surface. In the breast stroke, the breath may be obtained from the front by raising the head.

(3) Avoid carrying the head high out of the water, because this lowers the feet and causes the body to drag.

(4) Keep the body parallel with and as near the water surface as possible, thus offering less resistance.

(5) Employ the correct coordination of the stroke under consideration.

(6) Force should be expended *only* during the arm pull and leg drive which propells the body forward. Upon recovery of the stroke, the body must be relaxed, and no force whatever exerted in order to minimize resistance.

**THE ELEMENTARY BACK STROKE**

This stroke is of value as a means of resting the body and in life-saving.

It is our opinion that having learned to float the natural and logical progression for the great majority, especially girls and women, is the elementary back stroke. This stroke is an outgrowth of the fundamental positions used in true floating. Furthermore having overcome the fear of the water, having learned to breathe correctly and to balance the body in the horizontal position, it is a simple matter to learn the coordination of these very elementary arm and leg motions.

Most instructors advocate that the beginners first lesson should consist of the crawl, breast or side strokes. By such a method the beginner, in addition to learning the already complicated stroke, must also overcome the fear of the water, learn to breathe, and to balance the body. This is contrary to our mental and motor processes, that is, progressing from the simple to the complex.

The progressive steps in learning or teaching this stroke are :

- (1) Careful analysis of the land drills, arm motions.
- (2) Application of the above land drills, arm motions in the water.
- (3) Careful analysis of the land drills, leg motions.
- (4) Application of the above land drills, leg motions in the water.
- (5) Careful analysis of the land drills, combined arm and leg motions.
- (6) Application of the above land drills, combination of the arm and leg motions in the water.

Refer to the cardinal points concerning swimming, page 43.

### LAND DRILL

#### Breathing.

Inhale through the mouth on counts One! and Two! and exhale through the nose on counts Three! and Four!

#### FIRST LAND DRILL.

##### 1. Arm Motion.

Starting position—Take!

The starting position for the first land drill is as follows :

Stand, body erect, arms at the side of the body, feet together. Fig. 3. Page 45.

Up easily, inhale—One!

Slowly bring the hands up to the shoulders, fingers pointing down following an imaginary line along the side, elbows close to the body. Fig. 1. Page 45.

Out easily, inhale—Two!

Slowly extend the arms to the side horizontal position, palms down. Fig. 2. Page 45.

Down forcibly, exhale—Three!

Forcibly bring the extended arms down to the side of the body. Fig. 3. Page 45.

Hold, exhale—Four!

This count is the same as the starting position.

#### Motion Picture Land Drill.

Practice the above land drill, taking one step backward during the arm pull, or count Three! This serves as a motion picture land drill, illustrating the propelling power of the stroke.



The Elementary Back Stroke. Figs. 1, 2 and 3. Illustrate counts One! Two! and Three! of the land drill. Figs. 4, 5 and 6. Illustrate

## 2. Leg Motion.

Up easily, inhale—One!

Slowly bring the sole of one foot up along the side of the supporting leg, keeping the knee well back. Fig. 1. Page 45.

Out forcibly, inhale—Two!

Flex the ankle and forcibly extend the leg to the side. Fig. 2. Page 45.

Together forcibly, exhale—Three!

Forcibly bring the leg to starting position. Fig. 3. Page 45.

Hold, exhale—Four!

This count is the same as starting position.

## 3. Combination of Arm and Leg Motions—The Coordinated Stroke.

The coordination of the elementary back stroke consists of the combination of arm and leg motions, according to counts One! Two! Three! and Four! Figs. 1, 2 and 3. Page 45.

Up both, inhale—One!

Out both, inhale—Two!

Down and together both, exhale—Three!

Hold both, exhale—Four!

## SECOND LAND DRILL.

### 1. Arm Motion.

Starting position—Take!

Starting position for the second land drill is as follows: Lie on the back, body extended, arms at the side, feet together.

In order to get a clearer idea of the position of the body while in the water, practice the second land drill.

Up easily, inhale—One!

Counts One! Two! Three! and Four! of the arm motion, are described in the first land drill.

Out easily, inhale—Two!

Down forcibly, exhale—Three!

Hold, exhale—Four!

### 2. Leg Motion.

Up easily, inhale—One!

Slowly bend the knees, separating as far apart as possible, heels touching, toes pointed.

Out forcibly, inhale—Two!

Flex the ankles and forcibly extend the legs to the side.

Together forcibly, exhale—Three!  
 Forcibly bring the legs together.  
 Hold, exhale—Four!  
 This count is the same as starting position.

### 3. Combination of Arm and Leg Motions—The Coordinated Stroke.

The coordination of the elementary back stroke taken lying down is the same as described in the first land drill.

Up both, inhale—One!  
 Out both, inhale—Two!  
 Down and together both, exhale—Three!  
 Hold, exhale—Four!

IMPORTANT NOTE.—Counts One! and Two!, the recovery of the arm motion, must be executed slowly and easily, as force applied here would check body's glide. Count Three!, the pull of the arm motion, must be executed forcibly in order to propel the body forward. During count Four! the body glides forward on the momentum gained from the arm pull.

Count One!, the recovery of the leg movement, must be executed slowly and easily, remembering to slightly flex the knees, keeping them submerged and apart. Counts Two! and Three!, the leg drive, must be executed forcibly and in a continuous circular motion.

## WATER DRILL

### Breathing.

Inhale through the mouth on counts One! and Two! and exhale through the nose on counts Three! and Four! The breathing should be natural, and not forced.

### FIRST WATER DRILL.

#### 1. Arm Motion.

Starting position—Take!

Stand in shallow end of pool; shoulders submerged. Then assume the correct starting position of the arms as already described.

Up easily, inhale—One!

Practice the arm motion with breathing as described in the land drills.

Out easily, inhale—Two!

Down forcibly, inhale—Three!

**SECOND WATER DRILL.**

Starting position—Take!

Start from the back-push-off position. Fig. 4. Page 37. Then push away from the side of the tank and remain in correct true floating position, until the body nearly ceases its forward glide. Keep the head well back, chin in, arms at the side of body, and feet together.

Up easily, inhale—One!

Begin swimming with the arms alone as described in the land and water drills.

Out easily, inhale—Two!

Down forcibly, exhale—Three!

Hold, exhale—Four!

IMPORTANT NOTE.—Having executed a few strokes, regain standing position. Practice this arm motion until it is executed correctly and with ease.

**FIRST WATER DRILL.****2. Leg Motion.**

Starting position—Take!

Stand with the back to the side of the tank; submerge the shoulders; grasp the railing by means of the overhand grasp; hands far apart; assume true floating position. Fig. 4. Page 29.

Up easily, inhale—One!

Practice the leg motion as described in the second land drill, and refer to the important note at the end of that drill.

Out forcibly, inhale—Two!

Together forcibly, exhale—Three!

Hold, exhale—Four!

**SECOND WATER DRILL.**

Starting position—Take!

Start from the back-push-off position; push away; assume correct true floating position; place the hands on the hips.

Up easily, inhale—One!

Begin swimming with the legs alone, as described in the land and water drills.

Out forcibly, inhale—Two!

Together forcibly, exhale—Three!

Hold, exhale—Four!

IMPORTANT NOTE.—Refer to the note of the second water drill, arm motion.



The Elementary Back Stroke. Figs. 1, 2 and 3. Class drills.  
Fig. 4. Sculling.

### 3. Combination of the Arm and Leg Motions—The Coordinated Stroke.

Starting position—Take!

This starting position is the same as described for the arm motion, second water drill.

Up both, inhale—One!

Begin swimming with the arms and legs together as described under the coordinated stroke of the above land drills. Figs. 4, 5 and 6. Page 45.

Out both, inhale—Two!

Down and together, exhale—Three!

Hold, exhale—Four!

**IMPORTANT NOTE.**—Having executed a few strokes regain standing position. While swimming this stroke counts One!, Two! and Three! should comprise one continuous motion. During count Four! rest, and glide forward on the momentum gained.

After the novice has learned to breathe by inhaling through the mouth, and exhaling through the nose, which is according to the correct breathing method used in most swimming strokes, the beginner may close the mouth and breathe naturally if desired.

Having mastered the above stroke, the beginner is now ready to swim the elementary back stroke with greater speed by omitting count Four! or the glide and emphasize the arm pull.

Refer to instructors' note for the elementary back stroke, page 163.

### DON'T

**Don't** attempt to swim the elementary back stroke with the head forward, because this tends to sink the feet.

**Don't** execute count One! moving the elbows away from the side of the body, because this slightly impedes progress.

**Don't** raise the knees high out of the water and keep them close together, because this retards progress and tends to sink the body.

**Don't** use too rapid or jerky arm and leg motions, because this fatigues one and impedes progress.

**Don't** forget to apply power on the third count, because force is necessary to propell the body forward.

**Don't** attempt to swim the elementary back stroke with the body in a half sitting position, because this retards progress and sinks the body.

## THE SHEFFIELD SCULLING STROKE

This stroke is of value as a means of resting the body and inspiring the novice with additional confidence. The Sheffield sculling stroke is an outgrowth of the elementary back stroke, and is a modification of the sculling stroke. It is of further value because of its simple arm motion.

The progressive steps in learning or teaching this stroke are:

- (1) Careful analysis of the land drills, arm motions.
- (2) Application of the above land drills, arm motions, in water.
- (3) Careful analysis of the land drills, leg motions.
- (4) Application of the above land drills, leg motions, in the water.
- (5) Careful analysis of the land drills, combined arm and leg motions.
- (6) Application of the above land drills, combined arm and leg motions, in the water.

Refer to the cardinal points concerning swimming, page 43.

### LAND DRILL

#### Breathing.

Inhale through the mouth on count One! and exhale through the nose on count Two!

#### FIRST LAND DRILL.

##### 1. Arm Motion.

Starting position—Take!

The starting position for the first land drill is as follows: Stand, body erect, arms at the side of the body, palms forward, fingers together.

Up easily, inhale—One!

Slowly bring the hands up to the waist line, palms forward, the small fingers following an imaginary line along the side of the body. Fig. 1. Page 53.

Down forcibly, exhale—Two!

Then forcibly push down out and out by extending the elbows and turning the palms of the hands down. Fig. 2. Page 53.

#### Motion Picture Land Drill.

Practice the above land drill, taking one step backward during the arm drive, or count Two! This serves as a motion picture land drill, illustrating the propelling power of the stroke.

## 2. Leg Motion.

Left leg kick, inhale—One!

Raise the extended left leg forward about six inches, toes pointed; replace it.

Right leg kick, exhale—Two!

Repeat count One! substituting the right leg.

IMPORTANT NOTE.—Having learned the above drill, practice it using from four to six beats to the complete arm motion. Each downward leg movement constitutes a beat.

## 3. Combination of Arm and Leg Motions—The Coordinated Stroke.

The coordination of the Sheffield sculling stroke consists of the combination of the arm and leg motions, according to counts One! and Two!

Up easily, kick, inhale—One!

Down forcibly, kick, exhale—Two!

## SECOND LAND DRILL.

### 1. Arm Motion.

Starting position—Take!

The starting position for the second land drill is as follows: Lie on the back, body extended, arms at the side, palms up, feet together and over the edge of the pool.

Up easily, inhale—One!

Counts One! and Two! of the arm motion are the same as described in the first land drill.

Down forcibly, exhale—Two!

### 2. Leg Motion.

Crawl kick, inhale—One!

Practice the alternate up and down leg thrash while on the back, with a drive of from eight to fourteen inches, keeping the legs and ankles extended though slightly relaxed. Use from two to four leg thrashes or beats during each count.

Crawl kick, exhale—Two!

Repeat count One!

### 3. Combination of Arm and Leg Motions—The Coordinated Stroke.

The coordination of the Sheffield sculling stroke taken lying down is the same as described in the first land drill, except that more leg thrashes or kicks varying from two to four are given to each count.



The Sheffield Sculling Stroke. Figs. 1 and 2. Illustrate counts One! and Two! of the land drill. Figs. 3 and 4. Illustrate counts One! and Two! of the water drill. Figs. 5 and 6. Class Drill.

Up easily, kick, inhale—One!

Down forcibly, kick, exhale—Two!

**IMPORTANT NOTE.**—Count One! which constitutes the recovery of the arm motion, must be executed slowly and easily, as force applied here would check the body's progress. Count Two!, which constitutes the arm pull, must be executed forcibly in order to propell the body forward.

During counts One! and Two! of the arm motion there are from two to eight leg thrashes or beats, depending upon the ability of the novice. Bend the knees slightly and point the toes. The faster the legs drive the greater will be the speed obtained.

### **WATER DRILL**

#### **Breathing.**

Inhale through the mouth on count One! and exhale through the nose on count Two! The breathing should be natural and not forced.

#### **FIRST WATER DRILL.**

##### **1. Arm Motion.**

Starting position—Take!

Stand in the shallow end of the pool; submerge the shoulders. Then assume the correct starting position of the arms as already described.

Up easily, inhale—One!

Practice the arm motion with breathing as described in the land drills.

Down forcibly, exhale—Two!

#### **SECOND WATER DRILL.**

Starting position—Take!

Start from the back push-off. Fig. 4, Page 37. Then push away from the side of the tank and remain in correct true floating position, until the body nearly ceases its forward glide. Keep the head well back, chin in, arms at the side of the body, feet together. Fig. 5, Page 37.

Up easily, inhale—One!

Begin swimming on the back with the arms alone as described in the above land drills. Fig. 3, Page 53.

Down forcibly, exhale—Two!

Fig. 4, Page 53. **IMPORTANT NOTE.**—Having executed a few strokes, regain standing position. Practice this arm motion until it is executed correctly and with ease.

**FIRST WATER DRILL.****2. Leg Motion**

Starting position—Take!

Stand with the back to the side of the pool, submerge the shoulders; grasp the railing by means of the overhand grasp; assume true floating position. Fig. 4, Page 29.

Crawl-kick, inhale—One!

Crawl-kick, exhale—Two!

Practice the alternate up and down leg thrashes as described in the second land drill.

**SECOND WATER DRILL.**

Starting position—Take!

Start from the back-push-off; push away; assume correct true floating position; then place the hands on the hips.

Crawl-kick, inhale—One!

Begin swimming with the legs alone as described in the first water drill.

Crawl kick, exhale—Two!

**IMPORTANT NOTE.**—Be careful not to bend the knees noticeably and flex the ankles. Practice this leg motion until it is executed correctly and with ease.

**3. Combination of Arm and Leg Motions—The Coordinated Stroke**

Starting position—Take!

The starting position is the same as described in the second water drill, arm motion.

Up easily, kick, inhale—One!

Begin swimming with the arms and legs together as described under the coordinated stroke in the above land drills. Fig. 3, Page 53.

Down forcibly, kick, exhale—Two!

Fig. 4, Page 53. **IMPORTANT NOTE.**—If the novice desires to learn the ordinary sculling motion, he should practice the following drill. This sculling stroke consists of a rapid circular motion of arms. This arm motion is executed by first forcibly and quickly bringing the palms of both hands toward the side of the body, thumbs up, then quickly turning the palms of the hands away from the body, thumbs down. During this movement the elbows are slightly flexed. This sculling stroke may also be executed with a fast crawl leg kick. Fig. 4, Page 49.

After the novice has learned to breathe by inhaling through the mouth and exhaling through the nose, which is according to the correct breathing

method used in most swimming strokes, he may close the mouth and breathe naturally if desired.

Refer to the instructors' note for the Sheffield sculling stroke, page 163.

### DON'T

**Don't** attempt to swim the Sheffield sculling stroke with the head high out of the water or held forward, because this sinks the feet.

**Don't** bring the arms up forcibly on count One!, because this impedes progress.

**Don't** noticeably bend or raise the knees high out of the water, because this retards progress.

**Don't** attempt the crawl-kick without pointing the toes, because this limits the force of the kick.

**Don't** attempt to swim this stroke with the body in half sitting position, because this impedes progress and tends to sink the body.

### THE UNDER-ARM-SIDE-STROKE

This is of value in long distance swimming and is useful in life-saving.

The under-arm-side stroke is next in progression because of its simple coordination and slight change in body position. Furthermore, it is the foundation stroke for the single-over-arm-side stroke, the trudgeon, the trudgeon-crawl and the crawl.

The progressive steps in learning or teaching this stroke are:

- (1) Review the side-push-off.
- (2) Careful analysis of the land drills, arm motions.
- (3) Application of the above land drills, arm motions, in water.
- (4) Careful analysis of the land drills, leg motions, or the scissor kick.
- (5) Application of the above land drills, leg motions, in the water.
- (6) Careful analysis of the land drill, combined arm and leg motions.
- (7) Application of the above land drills, combined arm and leg motions, in the water.

Refer to the cardinal points concerning swimming, page 43.

### LAND DRILL

#### Breathing.

Exhale through the nose on count One! and inhale through the mouth on counts Two! and Three!



The Under-Arm-Side-Stroke. Figs. 1, 2, 3 and 4. Illustrate counts One! and Two! of the land drill. Figs. 5 and 6. Class drill.

**FIRST LAND DRILL.****1. Arm Motion.**

Starting position—Take!

The starting position for the first land drill is as follows: Stand, body erect, feet together, right arm extended to vertical position and close to the head, palms out, the extended left arm at the side, thumb touching the body, head turned slightly towards the left shoulder. Fig. 1, Page 57. This entire stroke is analyzed for a person swimming on the right side, therefore the reverse would apply for one swimming on the left side.

Pull right, cross left, exhale—One!

While the extended right arm is forcibly pulling down towards the right side of the body and finishing with the hand near the right shoulder; the left arm is slowly being brought up across the chest and close to the body, meeting the right hand. Figs. 2 and 3, Page 57.

Pull left, extend right, inhale—Two!

While the right arm is slowly being extended to the vertical position, palm out, the left arm is forcibly pulling down across the chest and close to the body, finishing at the side. Figs. 4 and 1, Page 57.

Hold, exhale—Three!

This count is the same at starting position. Fig. 1, Page 57.

**Motion Picture Land Drill.**

Practice the above land drill taking two steps in the line of direction; that is, two steps forward right side of body leading during each arm pull. This serves as a motion picture land drill, illustrating the propelling power of the stroke.

**FIRST LAND DRILL.****2. Leg Motion.**

Legs hold, exhale—One!

Stand, body erect, hands on hips.

Open easily, snap together, inhale—Two!

Practice the kick, first using the upper or left leg, then the lower or right leg. Raise the extended left leg forward about eight inches, ankles slightly flexed; replace the foot forcibly, toes pointed. Figs. 4 and 1, Page 57. Then raise the slightly flexed right leg about eight inches to the rear; forcibly replace it, toes pointed.

Hold, inhale—Three!

This count is the same as count One! of this drill.

**SECOND LAND DRILL.**

Starting position—Take!

Lie on the right side, legs extended, heels and knees touching, ankles slightly flexed, arms in starting position.

In order to get a clearer idea of the position of the body while in the water and a more accurate analysis of the scissor-kick, practice the second land drill. It is very difficult to practice the land drill for the arm motion lying down, hence just the leg motion is analyzed and the rest of the stroke learned standing.

Legs hold, exhale—One!

This count is the same as starting position.

Open easily, snap together, inhale—Two!

Slowly and easily separate the knees about eight inches, legs relaxed. While the upper or left leg is being extended forward, ankles slightly flexed, the lower or right leg is being slightly flexed to the rear. Then both legs are forcibly brought together and remain in starting position. Fig. 4. Page 63.

Hold, exhale—Three!

This count is the same as starting position.

**3. Combination of Arm and Leg Motions—The Coordinated Stroke.**

The coordination of the under-arm-side stroke, consist of the combination of the arm and leg motions according to counts One! Two! and Three!

Pull right, cross left, inhale—One!

Pull left, extend right, kick, inhale—Two!

Hold, exhale—Three!

Figs. 1, 2, 3 and 4, Page 57. **IMPORTANT NOTE.**—While the right arm is forcibly pulling, the relaxed left arm is recovering, and vice versa. Open the relaxed legs easily during the recovery and forcibly bring them together during the drive.

**WATER DRILL****Breathing.**

Exhale through the nose during count One! and inhale through the mouth during counts Two! and Three! The breathing should be natural and not forced.

**FIRST WATER DRILL.****1. Arm Motion.**

Starting position—Take!

Stand in the shallow end of the pool shoulders submerged. Then assume the correct starting position for the arms; that is, right arm extended and resting on water surface, palm down, the extended left arm at the side of the body, top of head resting on right arm, and look back slightly over left shoulder.

Pull right, cross left, exhale—One!

In executing this pull practice first with the right arm and then with the left arm according to the analysis given in the land drill. When this is learned practice the complete arm motion. Remember that force should be exerted only during the drive or pull of the stroke and that the arms alternate in their pull; that is, first the right arm pulls while the left arm is slowly recovering, then the left arm pulls while the right arm is slowly recovering.

Pull left, extend right, inhale—Two!

Hold, inhale—Three!

#### **SECOND WATER DRILL.**

Starting position—Take!

Start from the side-push-off. Figs. 2 and 3. Page 37. Push away and remain in a correct side-push-off position until the body almost ceases its forward glide.

Pull right, cross left, exhale—One!

After the side-push-off, begin swimming with the arms alone as described in the above drills.

Pull left, extend right, inhale—Two!

Hold, inhale—Three!

After executing a few strokes regain standing position. Practice this drill until it is executed correctly and with ease.

**IMPORTANT NOTE.**—The body may sink a little at first, because of the more difficult side position, and because of using the arms only. If such be the case, employ faster arm motion, and do not hold the third count so long.

#### **FIRST WATER DRILL.**

##### **2. Leg Motion.**

Starting position—Take!

The starting position for the scissor-kick is as follows: Stand with the right side of the body facing the side of the tank or railing; submerge the shoulders; grasp the railing with the left hand; place the palm of the right hand against the side of the tank, about eight inches under the water, with the fingers pointing down, thumb out. Then raise the legs to the water

surface and assume a correct side position, body extended, heels and knees touching.

Hold, exhale—One!

This count is the same as starting position.

Open easily, snap together, inhale—Two!

In executing this drill practice first with the upper or left leg, then with the lower or right leg. When this is learned practice the leg motion, using both legs as already described in the second land drill, leg motion. In practicing the scissor-kick be careful not to separate the knees more than ten inches because of the amount of resistance offered in the wide spread of the legs is not correspondingly compensated by the amount of power gained in the drive. Be careful not to raise either foot out of water, but to keep legs parallel with and as near the water surface as possible. Fig. 4. Page 63.

Hold, exhale—Three!

### SECOND WATER DRILL.

Starting position—Take!

The starting position is the same as described for the arm motion, second water drill. Hold the arms in starting position while practicing the scissor-kick in this drill.

Hold, exhale—One!

Open easily, snap together, inhale—Two!

Hold, inhale—Three!

After the side-push-off, begin swimming with the legs alone as described in the above drills. Having executed a few strokes, regain standing position.

**IMPORTANT NOTE.**—Apply force only as the legs are brought together. If the body tends to sink, use a faster leg drive and do not hold the first and third counts so long.

### 3. Combination of Arm and Leg Motions—The Coordinated Strokes.

Starting position—Take!

The starting position is the same as described for the arm motion, second water drill. Fig. 5. Page 63.

Pull right, cross left, exhale—One!

After the side-push-off begin swimming with the arms and legs together as described under the coordinated stroke in the first land drill. Figs. 1 and 2. Page 63.

Pull left, extend right, kick, inhale—Two!

Hold, inhale—Three!

Figs. 3 and 1, Page 63. IMPORTANT NOTE.—In order to maintain a correct side-push-off position, the top of the head must be held low, and look back slightly over the left shoulder, the mouth raised sufficiently to clear the water surface. The alternate arm pull must be straight down through the water and close to the body. The correct timing or coordination of the stroke may be further simplified by remembering to inhale through the mouth and open and close the legs as the upper or left arm *starts* to pull down across the body. In other words, do not kick or inhale until the beginning of the second count.

After the novice has learned to breathe by inhaling through the mouth and exhaling through the nose which is according to the correct breathing method used in most strokes, the novice may then close the mouth and breathe naturally. Having mastered the above the beginner is now ready to swim the side stroke with greater speed, by omitting count Three! or the glide and emphasizing each arm pull.

Refer to instructors' note for the under-arm-side stroke, page 164.

### DON'T

**Don't** swim with the head high out of water, as this is fatiguing and causes the body to drag.

**Don't** attempt to pull with both arms at the same time, because this tends to sink the body and causes a jerky stroke.

**Don't** permit the arms to pull in large circles away from the body, because this is not only a waste of energy but turns the body on the chest or on the back depending upon the direction of the pull.

**Don't** pull more forcibly with the under arm and lessen the pulling force of the upper arm, because this causes a jerky stroke, and on count One! lifts the body high out of the water, and on count Two! partially submerges it.

**Don't** exert force during the recovery of the stroke, because this retards progress.

**Don't** swim with the knees flexed, because this slightly impedes progress.

**Don't** attempt to swim the side stroke in a half forward or half backward position, because this disturbs body balance and offers greater resistance to the water.

**Don't** inhale or kick until the upper or left arm *starts* to come down through the water, because this is the correct timing or coordination of the stroke.



The Under-Arm-Side-Stroke. Fig. 1. The glide. Fig. 2. Finish of count One! Fig. 3. Finish of count Two! Fig. 4. Analysis of the scissor-kick. Fig. 5. Class in starting position. Fig. 6. Class swimming under-arm-side-stroke.

## THE SINGLE-OVER-ARM-SIDE STROKE

This stroke is also of value in life-saving or long distance swimming.

Having learned the side stroke the next in the logical progression of strokes is the single-over-arm-side stroke. The only difference between this stroke and the preceding one is that during count One! the upper or left arm recovers out of the water, reaching as far forward as possible.

The progressive steps in learning or teaching this stroke are the same as those given in the under-arm-side stroke.

### LAND DRILL

#### Breathing.

Exhale through the nose on count One! and inhale through the mouth on counts Two! and Three!

#### 1. Arm Motion.

Starting position—Take!

The starting position for this drill is as follows: Stand, body erect, feet together, right arm extended to a vertical position and close to the head, palm out, the extended left arm at the side, thumb touching the body, head erect and turned slightly towards the left shoulder. Fig. 1. Page 57.

This entire stroke is analyzed for a person swimming on the right side.

Pull right, cross over left, exhale—One!

While the extended right arm is forcibly pulling down towards the side of the body, hand finishing at the right shoulder; the relaxed left arm is recovering forward by raising the flexed elbow and keeping the wrist extended, hand low, finishing in a reach position in front of and away from the head. Figs. 1 and 2. Page 67.

Pull left, extend right, inhale—Two!

While the right arm is slowly being extended to the vertical position, palm out, the left arm is forcibly pulling down across the chest and close to the body, finishing at the side. Fig. 4. Page 57.

Hold, exhale—Three!

This count is the same as starting position.

#### Motion Picture Land Drill.

Practice the above land drill taking two steps in the line of direction; that is, two steps forward right side of the body leading during the arm pull. This serves as a motion picture land drill, illustrating the propelling power of the stroke.

**2. Leg Motion.**

Hold, exhale—One!

Counts One! Two! and Three! of this drill are the same as described in the first and second land drills, leg motion, of the under-arm-side stroke.

Open easily, snap together, inhale—Two!

Hold, inhale—Three!

**3. Combination of Arm and Leg Motions—The Coordinated Stroke.**

The coordination of the single-over-arm-side stroke consists of the combination of arm and leg motions according to counts One! Two! and Three! The only difference between this stroke and the one preceding is in the recovery of the upper arm.

Pull right, cross over left, exhale—One!

Pull left, extend right, kick, inhale—Two!

Hold, inhale—Three!

**IMPORTANT NOTE.**—While the right arm is forcibly pulling, the relaxed left arm is recovering, and vice versa. Open the legs easily during the recovery and forcibly bring them together during the drive.

**WATER DRILL****Breathing.**

Exhale through the nose on count One! and inhale through the mouth on count Two! The breathing should be natural, not forced.

**FIRST WATER DRILL.****1. Arm Motion.**

Starting position—Take!

The starting position for the first and second water drills is as follows: Stand in the shallow end of the pool, shoulders submerged. Then assume the correct starting position for the arm motion, right arm extended about six inches under the water surface, palm down, the left arm extended to the rear, back of hand resting on water surface, elbow slightly flexed and relaxed ready for the recovery, top of head resting on right arm, and look back slightly over left shoulder.

The first water drill is a detailed analysis of the upper arm during the complete stroke.

Upper arm—Bend!

The recovery of the upper or left arm is simplified by first raising flexed elbow high enough to bring the extended wrist and lowered hand forward just above water surface.

Upper arm in position for the catch—Place!

Start the stroke by extending the hand about six inches under the water to a reach position and without altering the side position of the body.

Upper arm—Pull!

The arm pull or drive is executed forcibly and the direction of the pull is straight down through the water and close to the body.

Upper arm in position for the finish—Place!

The finish of the stroke is executed with the arm extended to the rear, back of hand resting on water surface, elbows slightly flexed and arm relaxed.

Repeat this drill until it is mastered and the recovery of the upper arm out of water becomes easy and natural.

#### **SECOND WATER DRILL.**

Pull right, cross over left, exhale—One!

Practice the complete arm motion, applying the description given in the preceding drills. Then practice the arm motion with breathing.

Pull left, extend right, inhale—Two!

Hold, exhale—Three!

Practice this drill until it is executed correctly and with ease.

#### **FIRST AND SECOND WATER DRILLS.**

##### **2. Leg Motion.**

Hold, exhale—One!

Counts One! Two! and Three! of this drill are the same as described in the first and second water drills, leg motion, of the under-arm-side stroke.

Open easily, snap together, inhale—Two!

Hold, exhale—Three!

##### **3. Combination of Arm and Leg Motions—The Coordinated Stroke.**

Starting position—Take!

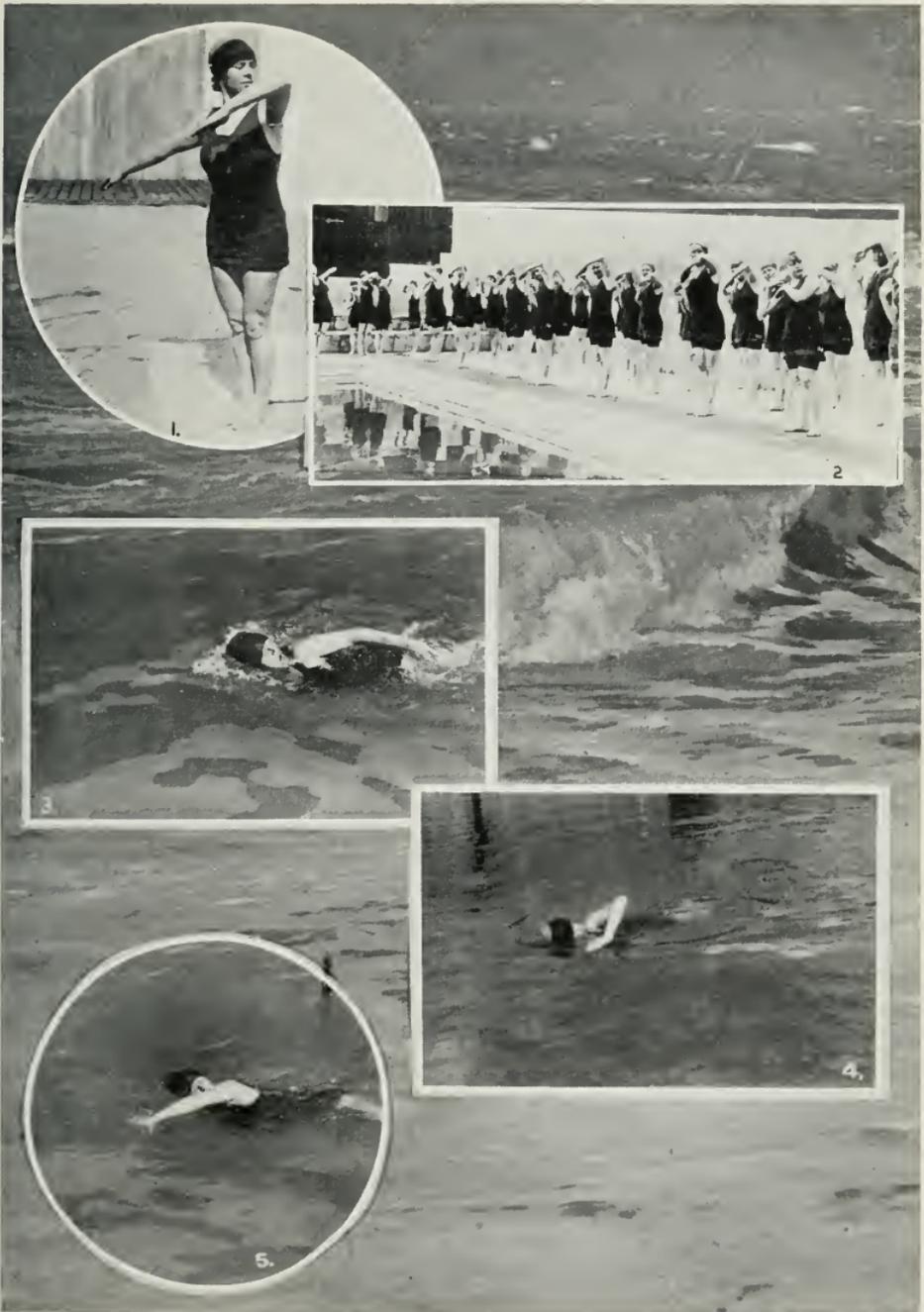
Start from the side-push-off position. Push away and remain in correct side position until the body almost ceases its forward glide. Figs. 2 and 3. Page 37.

Pull right, cross over left, exhale—One!

Pull left, extend right, kick, inhale—Two!

Hold, inhale—Three!

Figs. 3, 4 and 5. Page 67. To simplify the transition from the under-arm-side stroke to the single-over-arm-side stroke, start from the side-push-off



The Single-Over-Arm-Side Stroke. Fig. 1. Illustrates the first part of count One! Fig. 2. Class drill illustrating first part of count One! Fig. 3. Finish of the upper arm pull. Fig. 4. Recovery of the upper arm. Fig. 5. Catch position of the upper arm.

then swim one complete side stroke and follow this with one complete single-over-arm-side stroke. Repeat this until it is executed correctly and with ease. Remember that the single-over-arm-side stroke is like the under-arm-side stroke in every respect except that the upper or left arm recovers out of the water.

When this is mastered, swim one complete under-arm-side stroke and alternate with two complete single-over-arm-side strokes. Then the novice is ready for the single-over-arm-side stroke. Also refer to the important note given in the under-arm-side stroke, water drill, for the coordinated stroke.

If one is able to swim a fair single-over-arm-side stroke, it will not be necessary to practice this stroke by the above described method. Simply swim the over-arm-side stroke entirely, bearing in mind the important points to be considered.

During this water drill the analysis for swimming with the arms and legs alone has been omitted, because it is much easier to learn the single-over-arm-side stroke by the above described method. Also it is taken for granted that the swimmer has mastered the side stroke which is the foundation for the single-over-arm-side stroke.

Having learned the above, the beginner is now ready to swim the side stroke with greater speed by omitting count Three! or the glide and emphasizing each arm pull.

Refer to instructors' note for the under-arm-side stroke, page 164.

### DON'T

**Don't** reach too far forward with the recovering left arm, as this changes the body position from the side to the chest.

**Don't** permit the elbow to drag through the water or carry the hand high on the recovery of the left arm, because this offers resistance to the water.

**Don't** pull with both arms at the same time, because this tends to sink the body and causes a jerky stroke.

**Don't** permit the arms to pull in large circles away from the body, because this is not only energy wasted, but turns the body on the chest or the back, depending upon the direction of the pull.

**Don't** attempt to pull with the upper or left arm by first slapping the water surface, because this is wasted energy in pulling from the surface to the catch position, which is about six inches under the water.

**Don't** attempt the catch or arm pull with the upper arm until it is extended to a reach position and about six inches under the water surface, because this increases the driving power of the stroke.

**Don't** swim with the upper leg flexed, as this slightly impedes body progress.

**Don't** attempt to swim the side stroke in a half forward or half backward position, because the body must be entirely on the side throughout the stroke.

**Don't** inhale or kick until the upper or left arm starts to come down across the body, because this is the correct timing or coordination of the stroke.

## THE DOUBLE OVER-ARM OR TRUDGEON STROKE

This stroke is of value in life-saving and is one of the best endurance strokes used in long distance swimming.

The trudgeon is a modification and outgrowth of the single-over-arm side stroke. The difference is that both arms recover out of the water alternately. This causes the body to roll from the side to the chest, thereby changing the head position in breathing.

The progressive steps in learning or teaching this stroke are:

- (1) Careful analysis of the land drill, arm motions.
- (2) Application of the above land drill, arm motions, in the water.
- (3) Careful analysis of the land drill, leg motions.
- (4) Application of the above land drills, leg motions, in the water.
- (5) Careful analysis of the land drills, combined arm and leg motions.
- (6) Application of the above land drills, combined arm and leg motions, in the water.

Refer to the cardinal points concerning swimming, Page 43. To simplify the transition from the single-over-arm-side stroke to the trudgeon, begin with the side-push-off, then swim with one complete single-over-arm-side stroke and follow it with one complete trudgeon stroke. This alternation of one single-over-arm-side stroke with the trudgeon stroke makes the change gradual. When this is mastered swim one complete single-over-arm side stroke and alternate with two complete trudgeon strokes. Then the swimmer is ready for the trudgeon stroke.

### LAND DRILL

#### **Breathing.**

Exhale through the nose; turn the head face down during the last half of the recovery of the upper arm, or the latter part of count One! Inhale through the mouth; turn the head to the left during the last half of the upper arm pull or during the latter part of count Two!

**FIRST LAND DRILL.****1. Arm Motion.**

Starting position—Take!

(1) The starting position for this land drill is as follows: Stand, body erect, head turned slightly to the left, feet together, right arm raised to vertical position, palm forward, the extended left arm at the side, thumb touching the body. If desired the land drill may be analyzed according to starting position (1).

(2) This position is the same as starting position (1), then bend the body forward to the imaginary water line, slightly lowering the right shoulder and slightly raising the left. This stroke will be analyzed according to starting position (2), as it approximates the water drill. Fig. 1. Page 71.

This stroke is analyzed for one swimming on the right side, therefore the reverse would apply for one swimming on the left side.

Pull right, recover over left, exhale—One!

While the extended right arm is forcibly pulling down towards the right side of the body, finishing relaxed and near the thigh, elbow slightly flexed, palm up; the relaxed left arm is recovering forward by raising the flexed elbow, keeping the wrist extended, hand low, finishing in a reach position in front of and away from the head. Figs. 1, 2 and 3. Page 71.

**IMPORTANT NOTE.**—In extending the recovering left arm as far forward as possible to a reach position, the left shoulder is slightly depressed, thereby slightly elevating the right shoulder.

Pull left, recover over right, inhale—Two!

While the extended left arm is forcibly pulling down towards the left side of the body, finishing relaxed and near the thigh, elbows slightly flexed palm up, thereby turning the body on the right side with head turned to the left ready for the inhalation; the relaxed right arm is recovering forward by raising the flexed elbow, keeping the wrist extended, hand low, finishing in a reach position in front of and away from the head. Figs. 3, 4 and 1, Page 71.

**IMPORTANT NOTE.**—The hands should approximately travel through the same plane during the catch, drive, finish and recovery, keeping an equal distance apart throughout.

**Motion Picture Land Drill.**

Practice the above land drill, taking one step forward during each arm pull, or count. This serves as a motion picture land drill, illustrating the propelling power of the stroke.



The Double-Over-Arm or Trudgeon Stroke. Figs. 1, 2, 3 and 4. Illustrate counts One! and Two! of the land drill. Fig. 5. Class swimming trudgeon stroke.

## 2. Leg Motion.

Legs hold, exhale—One!

The arms remain in starting position throughout this drill.

Body turn, scissor-kick, inhale—Two!

This is similar to the scissor-kick given in the under-arm-side stroke, first land drill, except that on count Two! the body and feet turn slightly to the left, preceding the scissor-kick. Practice using the upper or left leg, then the lower or right leg. For further analysis of the scissor-kick refer to the under-arm-side stroke, first and second land drills, leg motion.

## 3. Combination Arm and Leg Motions—The Coordinated Stroke.

The coordination of the trudgeon consists of a combination of the arm and leg motions according to counts One! and Two!

Pull right, recover over left, exhale—One!

Pull left, recover over right, turn, kick, inhale—Two!

Figs. 1, 2, 3 and 4, Page 71. IMPORTANT NOTE.—The combination of the arm and leg motions is of value in analyzing the correct timing of the stroke, though it only approximates the body's position while in the water.

This land drill may be practiced while lying on a spring board, or other support, legs extended over the edge.

While the right arm is forcibly pulling, the relaxed left arm is recovering and vice versa. Open the legs easily during the recovery and forcibly bring them together during the drive.

### WATER DRILL

#### Breathing.

Exhale through the nose; submerge the face. The exhalation occurs during the last half of the recovery of the upper arm, or during the latter part of count One! Inhale through the mouth by turning the head to the left, mouth raised sufficiently to clear water surface.

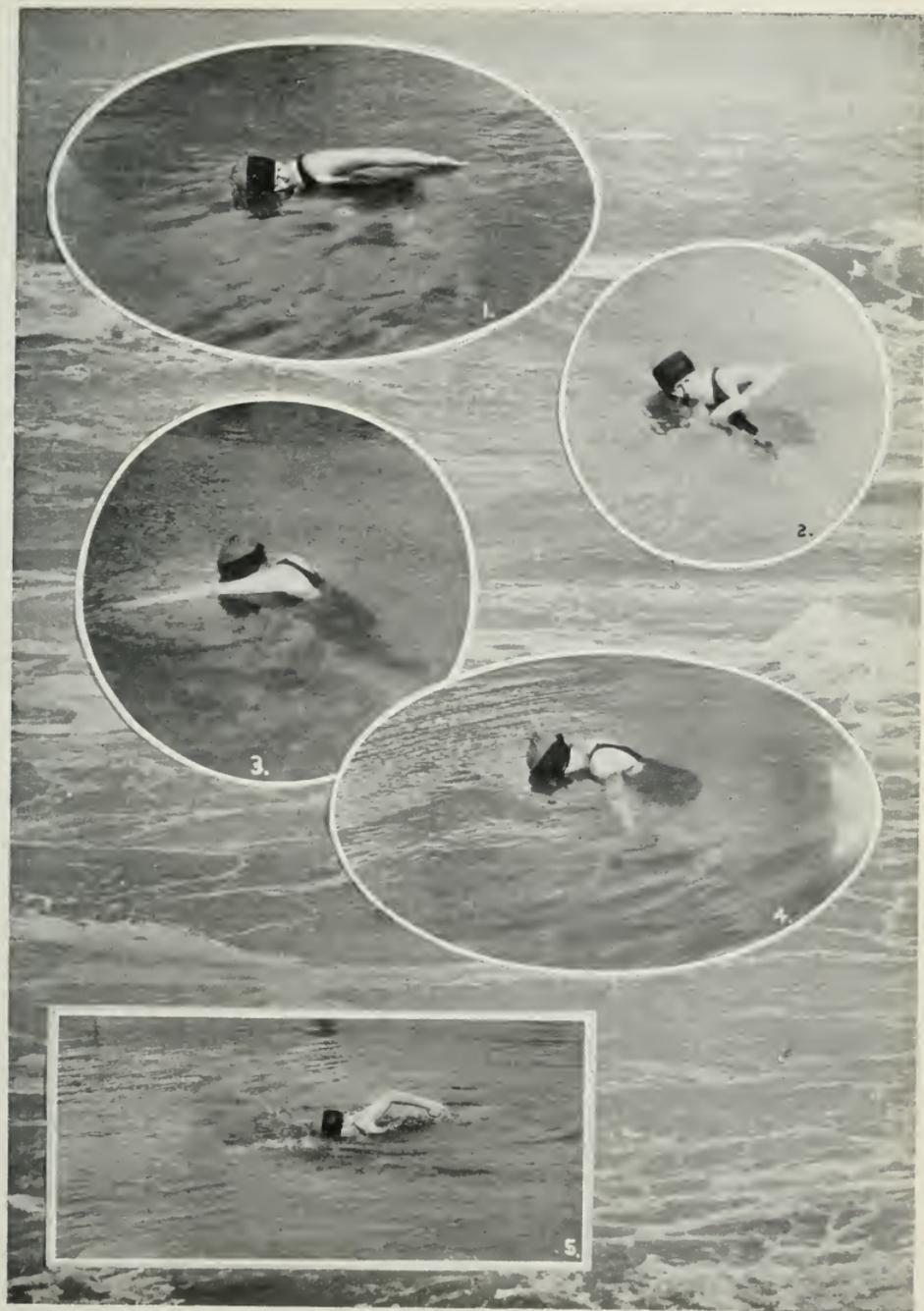
The inhalation occurs during the last half of the upper arm pull, or during the latter part of count Two! During the remainder of the stroke the face is turned to the side or submerged preparatory to the inhalation or exhalation.

#### FIRST WATER DRILL.

##### 1. Arm Motion

Starting position—Take!

Stand in the water; submerge the shoulders. During this drill the extended right arm remains at the side of the body. The relaxed left arm is



The Double Over Arm or Trudgeon Stroke. Fig. 1. Upper arm in finish position. Fig. 2. Upper arm in recovery. Fig. 3. Upper arm in catch position. Fig. 4. Upper arm pulling. Fig. 5. Beginning of count One!

near the thigh and in a position for the recovery, elbow slightly flexed, back of hand resting on water surface. The head and body are turned to the left. Fig. 1. Page 13.

The first water drill is a detailed analysis of the upper arm during the complete stroke.

Upper arm—Bend!

The recovery of the relaxed upper or left arm is simplified by first raising the flexed elbow high enough to bring the extended wrist and lowered hand forward just above the water surface. Fig. 2, Page 73.

Upper arm in position for the catch—Place!

The catch is executed by extending the arm as far forward as possible to a reach position, turning the body on the chest, and slightly depressing the left shoulder, finishing with the hand about six inches under water surface. Fig. 3. Page 73. With the arm in this position one is able to get the best possible leverage on the water. Be careful not to start the stroke with the hand in a diagonal forward position, or crossed in front of the imaginary center line of the body. Insert the hands straight ahead and shoulder width apart. The catch, pull, finish and recovery of the stroke is approximately in the same plane throughout.

Upper arm—Pull!

The pull or drive is executed forcibly and the direction is straight down through the water and close to the body. Be careful not to pull in a zig-zag fashion. Fig. 4. Page 73.

Upper arm in position for the finish—Place!

The finish of the stroke is executed with the arm partially flexed, back of hand resting on water surface. Fig. 1. Page 73.

Repeat this drill until it is mastered and the recovery of the upper arm becomes easy and natural.

## SECOND WATER DRILL.

Starting position—Take!

Stand in the shallow end of the pool; submerge the shoulders. Then assume the correct starting position for the arm motion; that is, right arm extended, hand about six inches under the water, palm down, shoulder slightly depressed; the left arm near the thigh and in position for the recovery, elbows slightly flexed, back of hand resting on water surface; top of head in the water, chin up; look back slightly over the left shoulder.

Pull right, recover over left, exhale—One!

Practice the complete arm motion, applying the description given in the preceding drill. Then practice this arm motion with breathing. During the latter part of count One! turn the body on the chest; submerge the

face; exhale through the nose. During the latter part of count Two! turn the body on the right side, raise the mouth sufficiently to clear water surface. First exhale the final bit of air, then inhale.

### FIRST AND SECOND WATER DRILLS.

#### 2. Leg Motion.

Legs hold, exhale—One!

Counts One! and Two! of this drill are the same as described in the first and second water drills, leg motions, of the under-arm-side stroke.

Turn body, scissor-kick, inhale—Two!

#### 3. Combination Arm and Leg Motions—The Coordinated Stroke.

Starting position—Take!

Start from a side-push-off position. Then push away, and remain in the correct side position until the momentum of the glide has nearly ceased. Figs. 2 and 3. Page 37.

Pull right, recover over left, exhale—One!

Pull left, recover over right, turn, kick, inhale—Two!

Fig. 5. Page 73. IMPORTANT NOTE. To simplify the transition to the trudgeon, start from the side-push-off; then swim one complete single-over-arm-side stroke; follow this with one complete trudgeon stroke. In other words the second time the left arm recovers, extend it as far forward as possible, inserting the hand about six inches under the water, thereby slightly depressing the left shoulder. At the same time turn the body on the chest; submerge the face; exhale through the nose. Then as the left arm pulls down through the water, turn on the right side, kick, inhale. During the inhalation turn the head to the left side, mouth raised sufficiently to clear water surface. During the exhalation the face is submerged. Refer to the analysis of breathing, chapter II.

If one is already able to swim a fair trudgeon stroke it will not be necessary to practice the preliminary steps described above. Perfect the trudgeon bearing in mind the various points to be considered.

During the water drill the analysis of swimming with the arms and legs alone has been omitted, because it is much easier to learn the trudgeon by the method described above. Also, it is taken for granted that the swimmer has mastered, the side and single-over-arm-side strokes which is the foundation for the trudgeon according to the natural progression of strokes.

Refer to instructors' note for the trudgeon stroke, page 164.

## DON'T

**Don't** raise the head high above the water when inhaling, because this sinks the feet and disturbs the body balance.

**Don't** swim with the head held high above the water, as this causes the body to drag.

**Don't** swim with the head submerged, because this impedes progress.

**Don't** permit the arms to recover with the elbows dragging in the water, hand high, because this offers resistance and retards progress.

**Don't** finish the arm recovery by crossing the hands in front of the head, because this decreases the length of arm pull.

**Don't** raise the hands high out of the water at the finish of the arm pull, because this is wasted energy.

**Don't** finish this arm recovery with the arms too far apart, as this results in poor leverage against the water for the catch.

**Don't** pull in a zig-zag fashion, because this decreases the pulling power.

**Don't** swim with the fingers apart, because this diminishes the pulling power.

**Don't** swim with the knees flexed, because this slightly impedes progress.

**Don't** separate the knees more than ten inches, because this retards progress.

**Don't** attempt to kick until the second count, because force is lost in the leg drive.

**Don't** swim with the body rigid, because this is fatiguing and difficult.

**Don't** forget to relax the body during the recovery of the stroke.

## THE TRUDGEON-CRAWL

This stroke is considered by many to be the best of all long distance strokes.

The trudgeon-crawl is an outgrowth of the trudgeon, and serves as a transition stroke to the crawl. This stroke is a slight variation from the trudgeon, the only difference is that the scissor-kick is intercepted by the up and down leg thrash of the crawl-kick and there is a slightly decreased body roll. In consequence the trudgeon-crawl has greater speed than the trudgeon, because the crawl-kick helps to propel the body forward instead of allowing the legs to drag as in the trudgeon.

The progressive steps in learning or teaching this stroke are the same as those given in the trudgeon.

**LAND DRILL****Breathing.**

Exhale through the nose; turn the head face down during the last half of the recovery of the upper arm, or the latter part of count One! Inhale through the mouth; turn the head to the left during the last half of the upper arm pull or the latter part of count Two!

**FIRST LAND DRILL.****1. Arm Motion.**

Starting position—Take!

Starting position for this drill is the same as given for the trudgeon stroke.

Pull right, recover over left, exhale—One!

Pull left, recover over right, inhale—Two!

The description of this drill is the same as given in the land drill of the trudgeon stroke.

**Motion Picture Land Drill.**

Practice the above land drill, taking one step forward during each arm pull, or count. This serves as a motion picture land drill, illustrating the propelling power of the stroke.

**2. Leg Motion.**

Crawl-kick, exhale—One!

Raise the extended left leg to the rear about six inches, toes pointed; then forcibly replace it. Repeat, substituting the right leg.

Body turn, scissor-kick, inhale—Two!

Refer to the trudgeon land drill, leg motion.

**3. Combination of Arm and Leg Motions—The Coordinated Stroke.**

The coordination of the trudgeon-crawl, consists in the combination of the arm and leg motions according to counts One! and Two!

Pull right, recover over left, crawl-kick, exhale—One!

Pull left, recover over right, body turn, scissor-kick, inhale—Two!

**IMPORTANT NOTE.**—The combination of the arm and leg motions is of value in analyzing the correct timing of the stroke, though it only approximates the body's position while in the water.

The correct timing of the trudgeon-crawl can be learned if one observes the following rule: During the right arm pull or count One! execute the

crawl-kick beginning with the left leg, finishing the second beat with the right leg. During the left arm pull or count Two! turn slightly to the left; execute a small scissor-kick.

While the right arm is forcibly pulling, the relaxed left arm is recovering and vice versa. Open the legs easily during the recovery, and bring them together forcibly during the drive.

### WATER DRILL

#### Breathing.

Exhale through the nose; submerge the face. The exhalation occurs during the last half of the recovery of the upper arm or during the latter part of count One! Inhale through the mouth by turning the head to the left, mouth raised sufficiently to clear water surface. The inhalation occurs during the last half of the upper arm pull, or during the latter part of count Two! During the remainder of the stroke the face is turned to the side or submerged preparatory to the inhalation or exhalation.

#### FIRST AND SECOND WATER DRILLS.

##### 1. Arm Motion.

Pull right, recover over left, exhale—One!

Pull left, recover over right, inhale—Two!

The starting position and description of these drills is the same as given in the first and second water drills of the trudgeon.

##### 2. Leg Motion.

Starting position—Take!

Face the side of the tank; grasp the railing with the left hand; place the palm of the right hand against the side of the tank about eight inches under the water surface, with the fingers pointing down, thumb out. Then assume a correct face-submerged-floating position; that is, legs extended knees almost touching, toes pointed, ankles relaxed. Fig. 1, Page 25.

Crawl-kick, exhale—One!

Practice the crawl-kick which consists of a series of quick alternate up and down leg thrashes of even length. The leg drive extends from the hips to the pointed toes, the thrash being about eight inches and not more than fourteen. At first, work the legs slowly until a correct and easy rhythm is established. Then practice the correct timing of the stroke by using two or four leg beats during count One! or the exhalation. Each downward movement of the leg constitutes a beat. The best timing for the trudgeon-crawl is using two leg thrashes or beats during count One! or the exhalation. During this count, begin the leg thrash with the left leg and finish

it with the right. Be careful not to raise the feet above the water surface, or noticeably bend the knees as energy is lost. Fig. 1, Page 25.

The crawl-kick may be first practiced with the head raised and then with breathing.

Turn body, scissor-kick, inhale—Two!

For the complete analysis of the scissor-kick refer to the first and second water drills, leg motions, of the under-arm-side stroke. Fig. 4, Page 63.

**IMPORTANT NOTE.**—When each count of the above land drill is learned, practice the complete leg motion, first using two crawl-kicks; then turn the body on the right side and follow it with the scissor-kick, being careful not to separate the knees more than ten inches, and keeping the legs as straight as possible.

### 3. Combination of Arm and Leg Motions—The Coordinated Stroke.

Starting position—Take!

Start from the side-push-off position. Push away, body remaining in correct side position until the momentum of the glide has nearly ceased. Figs. 2 and 3, Page 37.

Pull right, recover over left, crawl-kick, exhale—One!

Pull left, recover over right, body turn, scissor-kick, inhale—Two!

Practice this stroke as already described in the trudgeon, second water drill, but on count One! add two or four leg beats. Fig. 5, Page 73. Fig. 4, Page 87.

Refer to the instructors' note for the trudgeon-crawl, page 165.

## DON'T

**Don't** bend the knees noticeably or raise the feet high out of the water in the crawl-kick, because this limits the leg drive to the lower knee, and energy is lost.

**Don't** attempt the crawl-kick with the ankles flexed, because this impedes progress.

**Don't** attempt the crawl-kick with the legs and ankles held rigid, because this is fatiguing.

**Don't** attempt the crawl-kick with the legs held far apart, as this offers greater resistance.

Also refer to the **Don't** section of the trudgeon.

## THE PRELIMINARY CRAWL

The preliminary crawl serves as a foundation stroke, and simplifies the mastery of the crawl; that is, it is necessary to proceed with the preliminary crawl, if the novice is desirous of first learning the crawl in the progression of strokes.

The progressive steps in learning or teaching this stroke are:

- (1) Learn all of Chapter II, the "Beginners First Lessons," paying particular attention to breathing and face-submerge-push-off.
- (2) Careful analysis of the land drill, arm motion.
- (3) Application of the above land drill, arm motion, in the water.
- (4) Careful analysis of the land drill, leg motion.
- (5) Application of the above land drill, leg motion, in the water.
- (6) The coordinated stroke in the water.

### LAND DRILL

#### FIRST LAND DRILL.

##### 1. Arm Motion.

Starting position—Take!

Stand, body erect, feet together, right arm raised to vertical position, palm forward, the extended left arm at the side, thumb touching body. Then bend the body forward to the imaginary water line.

Pull down and under right, circle over and forward left—One!

Start an alternating paddle motion with the arms, keeping them the same distance apart throughout. While the extended right arm is forcibly pulling down towards the right side of the body; the left arm is circling forward by raising the bent elbow, hand low.

Pull down and under left, circle over and forward right—Two!

Execute count One! substituting the pull with the left arm and the recovery with the right arm.

IMPORTANT NOTE.—Emphasize the body roll to the side of the pulling arm.

#### Motion Picture Land Drill.

Practice the above land drill taking one step forward during each arm pull, or count. This serves as a motion picture land drill, illustrating the propelling power of the stroke.

## 2. Leg Motion.

Starting position—Take!

Lie face down, relaxed legs extended over edge of pool, knees slightly apart, toes pointed.

Kick left leg—One!

Raise the extended or straightened left leg to the rear about six inches, toes pointed; then replace it.

Kick right leg—Two!

Raise extended right leg to the rear about six inches, toes pointed; then replace it.

**IMPORTANT NOTE.**—Each downward movement of the leg constitutes a beat. While the right arm is forcibly pulling, the relaxed left arm is recovering and vice versa.

### WATER DRILL

#### FIRST WATER DRILL.

##### 1. Arm Motions

Stand in the shallow end of the pool; submerge the shoulders. During this drill the extended right arm remains at the side of the body. The relaxed left arm is extended to the rear of the body, back of hand resting on the water surface, ready for the circling forward or the recovery.

The first water drill is a detailed analysis of the arm motion.

Upper arm—Bend!

The upper or left arm is brought forward in a circling motion, just above the water surface.

Upper arm in position for the start—Place!

Straighten the arms and place the hand slightly under the water surface, fingers together.

Upper arm—Pull!

Forcibly pull straight down through the water and close to the body.

Upper arm in position for the finish—Place!

Finish the stroke with the arm slightly bent or flexed, back of hand resting on water surface.

Repeat this drill until it is mastered and the recovery or circling forward of the upper arm above the water and the forcible pull is executed correctly.

#### SECOND WATER DRILL.

Starting position—Take!

Stand in the shallow end of the pool; submerge the shoulders and assume the correct starting position for the arms; that is, right arm ex-

tended, hand about six inches under the water, palm down, the left arm to the rear of the body slightly bent or flexed; back of hand resting on water surface.

Pull down and under right, circle over and forward left—One!

Pull down and under left, circle over and forward right—Two!

Practice the complete arm motion with the head raised, applying the description given in the preceding drill. Then repeat the arm motion with the head submerged.

### **THIRD WATER DRILL.**

Starting position—Take!

Start from the face-submerged-push-off position, but grasp the railing with the left hand, right arm extended and resting on water surface. Inhale; submerge the face; push away.

Pull down and under right, circle over and forward left—One!

Pull down and under left, circle over and forward right—Two!

Begin swimming using an alternating paddle motion, keeping the arms the same distance apart, forcibly pull deep down through the water, returning with a circling forward motion above the water. Remember to keep the elbow slightly raised, hand low.

Having executed a few strokes with the face submerged, practice this drill until it can be done correctly and with ease.

### **FIRST WATER DRILL.**

#### **2. Leg Motion.**

Starting position—Take!

Face the side of the tank; grasp the railing; assume the face-submerged-floating position; that is, legs extended, knees almost touching, toes pointed, ankles relaxed.

Kick left leg—One!

Kick right leg—Two!

Practice the crawl-kick, which consists of a series of alternate up and down leg thrashes of even length, the leg drive extends from the hips to the pointed toes, the thrash being about ten inches. The crawl-kick may be first practiced with the head raised and then submerged.

At first work the legs slowly, beginning with the left leg, then the right leg, counting One!—Two! Be careful not to raise the feet above the water surface or noticeably bend the knees, as energy is lost and this impedes progress.

**SECOND WATER DRILL.**

Starting position—Take!

Assume the correct face-submerged-push-off position, inhale, push away.

Kick left leg—One!

Kick right leg—Two.

Practice this kick several times, propelling the body forward a short distance, then regain standing position.

**3. Combination of Arm and Leg Motions—The Coordinated Stroke.**

Starting position—Take!

Start from the face-submerged-push-off position, but grasp the railing with the left hand, right arm extended and resting on water surface. Inhale, push away.

Pull down and under right, circle over and forward left, kick, exhale—One!

Pull down and under left, circle over and forward right, kick, inhale—Two!

The decided body roll from side to side necessitates a natural two beat crawl-kick. To make sure of the correct timing or coordination, remember that while the right arm pulls forcibly down through the water, the left leg kicks; and as the left arm pulls forcibly down through the water the right leg kicks.

(1) Practice the combination of arm and leg motions with the head submerged.

(2) Practice the coordinated stroke with the head raised; breath naturally.

(3) Practice the coordinated stroke with the head submerged and then raised; that is, exhale through the mouth by submerging the face as the upper or left arm circles forward, and then inhale through the mouth by turning the face to the left, mouth raised sufficiently to clear water surface as the upper arm pulls down through the water.

The Hawaiians have successfully used the surf-board as a means of enabling them to learn the crawl. Lie on the board. First, practice the arm motions, second, the leg motions, and third, the combination of arm and leg motions. The object of using the board is that it gives added confidence, and develops an independent arm and leg action. An easy rhythm and correct coordination is unconsciously established. Having learned the preliminary crawl, the novice is ready for the crawl.

Refer to the instructors' note for the preliminary crawl, page 165.

**DON'T**

**Don't** circle the arm forward with the elbow dragging through the water, as this retards progress.

**Don't** hold the arm rigid when it is brought forward, as this is fatiguing.

**Don't** circle over with the hand carried high above the water, as this tends to sink the body and results in an awkward stroke.

**Don't** attempt the arm pull with the fingers apart, as this lessens the propelling power.

**Don't** bring the feet out of the water, as this is a waste of energy.

**Don't** flex the ankles and noticeably bend the knees, as this retards progress and limits the leg drive.

**Don't** hold the legs stiff, as this is fatiguing.

**THE CRAWL**

Having learned the trudgeon-crawl or preliminary crawl, we shall next advance to the speediest of all strokes, the famous crawl, which is used in sprint and in long distance swimming. The difference between the crawl and the trudgeon crawl is in the substitution of the crawl-kick throughout, thereby eliminating the body roll from the side to the chest and diminishing the shoulder depression. There is also a difference in the head position in breathing.

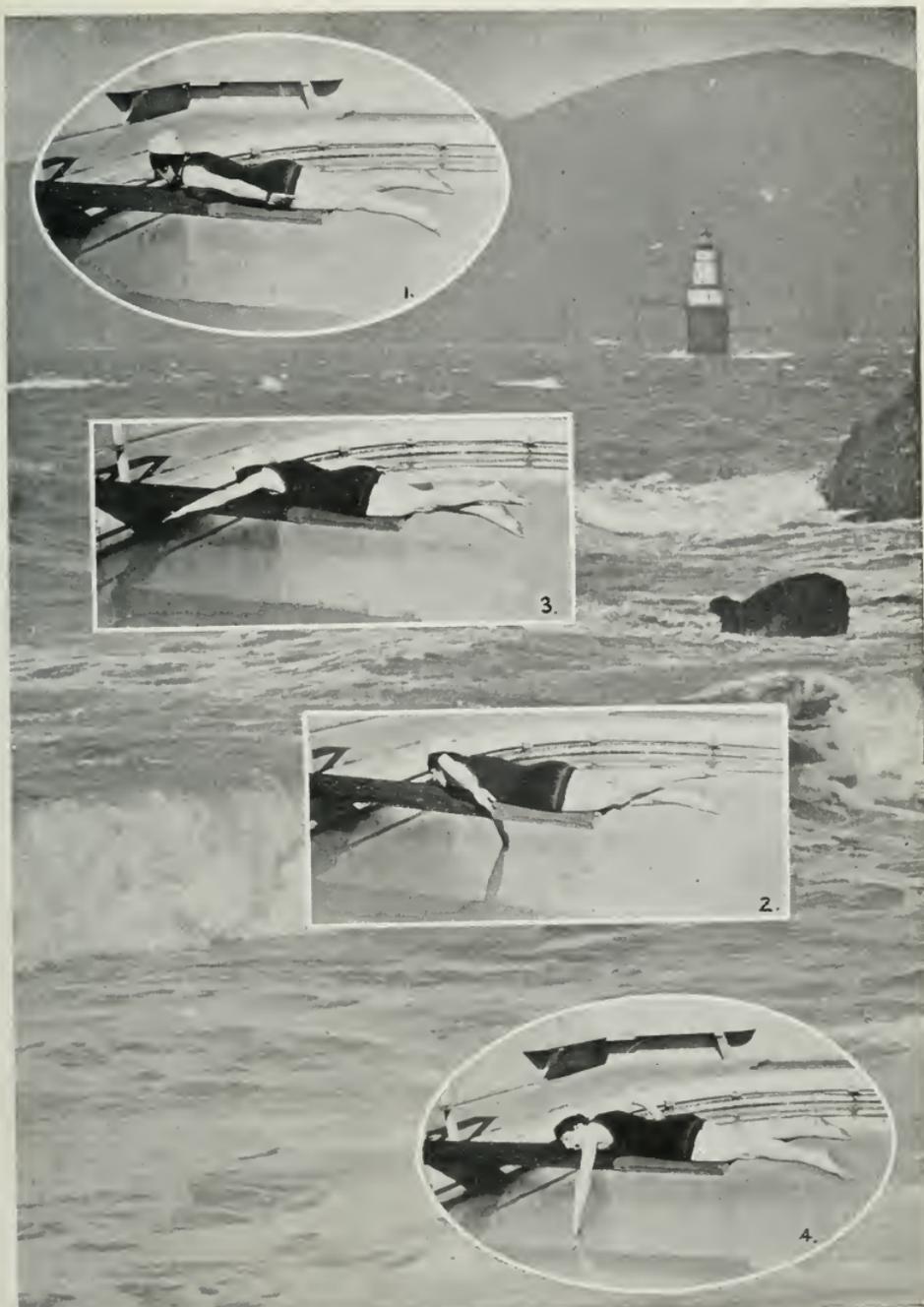
The progressive steps in learning or teaching this stroke are:

- (1) Careful analysis of the land drills, arm motion.
- (2) Application of the above land drills, arm motions in the water.
- (3) Careful analysis of the land drills, leg motions.
- (4) Application of land drills, leg motions, in the water.
- (5) Careful analysis of the land drills, combined arm and leg motions.
- (6) Application of the above land drills, combined arm and leg motions, in the water.

Refer to the cardinal points concerning swimming, page 43.

**LAND DRILL****Breathing.**

Exhale through the nose; turn the head face down during the last half of the recovery of the upper arm, or the latter part of count One! Inhale through the mouth; turn the head slightly to the left during the last half of the upper arm pull or latter part of count Two!



The Crawl. Fig. 1. Starting position, also showing upper arm in finish position. Fig. 2. Upper arm in recovery. Fig. 3. Upper arm in catch position. Fig. 4. Upper arm pulling.

**FIRST LAND DRILL.****1. Arm Motion.**

Starting position—Take!

The starting position for the first land drill is as follows: Stand, body erect, feet together, right arm raised to vertical position, palm forward, the extended left arm at the side, thumb touching body. Then bend the body forward to the imaginary water line, turning the head slightly to the left.

Pull right, recover over left, exhale—One!

While the extended right arm is forcibly pulling down towards the right side of the body, finishing relaxed and near the thigh, elbow slightly flexed, palm up; the relaxed left arm is recovering forward by raising the flexed elbow, keeping the wrist extended, hand low, finishing in a reach position in front of and away from the head. At the same time turn the head down for the exhalation.

Pull left, recover over right, inhale—Two!

Execute count One! substituting pull with the left arm, the recovery with the right; at the same time, turn the head slightly to the left for the inhalation. Figs. 1 and 2. Page 87.

**IMPORTANT NOTE.**—The hands should travel approximately through the same plane during the catch, pull, finish, and recovery of the stroke. The arms should be an equal distance apart. Remember that the body does not turn from the side to the chest as in the trudgeon, but rolls slightly from side to side, which facilitates a correct arm recovery and aids in breathing.

**SECOND LAND DRILL.**

Practice the above land drill, taking one step forward during each arm pull, or count. This serves as a motion picture land drill, illustrating the propelling power of the stroke.

**2. Leg Motion.**

Crawl-kick, exhale—One!

Raise the extended left leg to the rear about six inches, toes pointed; then forcibly replace it.

Crawl-kick, inhale—Two!

Raise the extended right leg to the rear about six inches, toes pointed; then forcibly replace it. Fig. 1, Page 87.

**IMPORTANT NOTE.**—Having learned the above drill, practice it using two, three, or four beats to each count. Each downward movement of



The Crawl. Fig. 1. Upper or left arm in catch position. Fig. 2. Upper arm pulling. Fig. 3. Upper arm recovering. Fig. 4. Front view of the upper arm recovering. Fig. 5. Upper arm pulling.

the legs constitutes a beat. This land drill only approximates the crawl-kick.

### 3. Combination of Arm and Leg Motions—The Coordinated Stroke.

The coordination of the crawl consists of the combination of the arm and leg motion according to counts One! and Two! Figs. 1 and 2. Page 87.

Pull right, recover over left, kick, exhale—One!

Pull left, recover over right, kick, inhale—Two!

By applying the following rule one will be able to determine the correct timing or coordination of the arm and leg motions for the two, four, six, or eight beat crawl. *Begin the stroke by pulling with the right arm, at the same time executing the first leg beat with the left leg; finish the complete stroke by pulling with the left arm, at the same time executing the last beat with the right leg.* The application of this rule for the two, four, six or eight beat crawl is as follows:

Two Beat Crawl:

Right arm pull; left leg kick.

Left arm pull; right leg kick.

Four Beat Crawl:

Right arm pull; left, right leg kick.

Left arm pull; left, right leg kick.

Six Beat Crawl:

Right arm pull; left, right, left leg kick.

Left arm pull; right, left, right leg kick.

Eight Beat Crawl:

Right arm pull; left, right, left, right leg kick.

Left arm pull; left, right, left, right leg kick.

## SECOND LAND DRILL.

### 1. Arm Motion.

Starting position—Take!

Starting position for the second land drill is as follows: Lie face down, the extended right arm in vertical position palm down, the left arm in position for the recovery, elbows slightly flexed, palm up, legs extended and knees slightly separated, toes pointed, and ankles slightly relaxed. Use the end of the spring board or bench, or some support which will give freedom for arm and leg motion. Fig. 1, Page 85.

Pull right, recover over left, exhale—One!

Counts One! and Two! of the arm motion are the same as described in the first land drill. Figs. 1, 2, 3 and 4. Page 85.

Pull left, recover over right, inhale—Two!

## 2. Leg Motion.

Crawl-kick, exhale—One!

Practice the alternate up and down leg thrashes with a drive of about eight inches and not more than fourteen. Keep the legs and ankles extended, though slightly relaxed. Use two, three, or four leg thrashes or beats during each count. Figs. 1, 2, 3 and 4, Page 85.

Crawl-kick, inhale—Two!

Repeat count One!

## 3. Combination of Arm and Leg Motions—The Coordinated Stroke.

The coordination of the crawl stroke taken lying down is the same as described in the first land drill. The best results have been obtained by practicing the coordinated stroke, using six beats to the complete arm motion.

Pull right, recover over left, kick, exhale—One!

Pull left, recover over right, kick, inhale—Two!

Usually there is not enough apparatus available to enable the class to execute this drill. But it may be practiced at home and a clearer idea of the correct timing of the stroke obtained. Figs. 1, 2, 3 and 4, Page 85.

**IMPORTANT NOTE.**—While the right arm is forcibly pulling, the relaxed left arm is recovering, and vice versa. Open the legs easily during the recovery and forcibly bring them together during the drive.

## WATER DRILL

### Breathing.

Exhale through the nose; submerge the face. The exhalation occurs during the last half of the recovery of the upper arm, or during the latter part of count One! Inhale through the mouth by turning the head slightly to the left, mouth raised sufficiently to clear water surface. The inhalation occurs during the last half of the upper arm pull, or during the latter part of count Two! During the remainder of the stroke the face is turned to the side or submerged preparatory to the inhalation or exhalation.

### FIRST WATER DRILL.

#### Arm Motion.

Starting position—Take!

Stand in the water; submerge the shoulders. During this drill, the extended right arm remains at the side of the body. The relaxed left arm

is near the thigh and in position for the recovery, elbow slightly flexed, back of hand resting on water surface. The head is turned slightly to the left. Fig. 1, Page 73.

The first water drill is a detailed analysis of the upper arm during the complete stroke.

Upper arm—Bend!

The recovery of the upper or left arm is simplified by first raising the flexed elbow high enough to bring the extended wrist and lowered hand just above the water surface, in front of and away from the head. Fig. 2, Page 73.

Upper arm in position for the catch—Place!

The catch is executed by extending the arm forward, finishing with the hand about six inches under the water, face submerged. In extending the arm forward be careful not to over reach, thereby greatly depressing the shoulder. Fig. 3, Page 73.

Upper arm—Pull!

The arm pull or drive is executed forcibly and straight down through the water and close to the body. Be careful not to pull in a zigzag fashion. Fig. 4, Page 73.

Upper arm in position for the finish—Place!

The finish of the stroke is executed with the arm partially flexed, back or hand resting on water surface. Fig. 1, Page 73.

Repeat this drill until it is mastered and the recovery of the upper arm out of the water becomes easy and natural.

## SECOND WATER DRILL.

Starting position—Take!

Stand in the shallow end of the pool; submerge the shoulders. Then assume the correct starting position for the arm motion; right arm extended, hand about six inches under the water surface, palm down, the left arm in position for the recovery near the thigh, elbows slightly flexed, back of hand resting on water's surface.

Pull right, recover over left, exhale—One!

Pull left, recover over right, inhale—Two!

Practice the complete arm motion, applying the description given in the preceding drill. Then practice the complete arm motion with breathing. During the latter part of count One! turn the head; submerge the face; exhale through the nose, during the latter part of count Two! turn the head slightly to the left, mouth raised sufficiently to clear water surface; inhale. During the remainder of the stroke the face is turned to the side or submerged preparatory to the inhalation or exhalation.

**FIRST WATER DRILL.****2. Leg Motion.**

Starting position—Take!

Face the side of the tank, grasp the railing and assume the face submerged floating position; that is, legs extended, knees slightly apart, toes pointing, ankles relaxed. Fig. 1. Page 25.

Crawl-kick, exhale—One!

Crawl-kick, inhale—Two!

First practice the crawl-kick with the head raised, then with breathing. The crawl-kick consists of a series of quick alternate up and down leg thrashes of even length. The leg drive extends from the hips to the pointed toes, the thrash being about eight inches and not more than fourteen. At first, work the legs slowly until a correct and easy rhythm is established.

Each downward movement of the legs constitutes a beat. Practice the correct timing of the stroke by using two, three, or four beats to each count or inhalation or exhalation. The application of the above rule for the six-beat crawl is as follows: Exhale; left, right, left leg kick.

Inhale; right, left, right leg kick. The drive or force of the kick occurs as the heels come together and the recovery or relaxation occurs when they separate. Be careful not to raise the feet above the water surface, or noticeably bend the knees, as energy is lost.

**SECOND WATER DRILL.**

Starting position—Take!

Start from the face-submerged-push-off position. Inhale, push away with the arms and legs extended. Figs. 2 and 3. Page 29.

Crawl-kick—One!

Crawl-kick—Two!

Practice the crawl-kick, propelling the body across the pool about fifteen feet. Then regain standing position.

**3. Combination of Arm and Leg Motions—The Coordinated Stroke.**

Starting position—Take!

Start from the face-submerged-push-off position, but grasp the railing with the left hand, right arm resting on water surface. Inhale; push away.

Pull right, recover over left, kick, exhale—One!

Pull left, recover over right, kick, inhale—Two!

Figs. 3, 4 and 5. Page 87.

**IMPORTANT NOTE.**—As the left arm recovers forward, submerge the face and exhale. Begin the forcible arm pull with the right hand about six

inches under the water, thus getting a good leverage, and continue the downward pull, keeping the arm close to the body. At the same time begin the crawl kick with the left leg. Remember to recover with the hand low to the water, elbow raised and slightly flexed. Counts One! and Two! should be executed as one continuous motion. The number of leg thrashes during the complete stroke varies from two to eight beats, depending upon the ability of the individual and the speed of the stroke. The six-beat crawl has proven the most satisfactory.

The position of the head, that is, face submerged or partially submerged, depends upon the buoyancy of the individual. Those having unusual buoyancy or floating ability, would probably have to swim with the eyes above the water surface in order to regulate the correct body balance, and prevent the feet from coming out of the water. On the other hand, when one lacks the natural body buoyancy, the face should be submerged in order to keep the feet from dragging, thereby maintaining the correct body balance.

Many of our noted Hawaiian swimmers have demonstrated the value of the surf-board as a means of learning the crawl. They naturally acquire a correct catch position and arm pull, and also a powerful leg drive. Furthermore, by this method they develop an independent arm and leg action. An easy and correct coordination is unconsciously established. Refer to the instructors' note for the crawl stroke, page 165.

### DON'T

**Don't** raise the head high above the water when inhaling, because this sinks the feet and disturbs the body balance.

**Don't** swim with the head held high out of the water, because this causes the body to drag.

**Don't** swim with the head submerged, because this impedes progress.

**Don't** change the body position from the chest to the side when breathing, because this disturbs the body balance.

**Don't** permit the arms to recover with the elbow dragging in the water and hand high, because this offers resistance and retards progress.

**Don't** finish the arm recovery by crossing the hands in front of the head, because this decreases the length of the arm pull.

**Don't** finish the recovery with the arms too far apart as this causes a loss of energy and leverage in the pull.

**Don't** swim with the fingers apart, as this diminishes the pulling power.

**Don't** bring the hands high out of the water at the finish of the arm pull, because it is energy wasted.

**Don't** greatly depress the shoulder during the catch of the stroke, as this causes an unnecessary body roll.

**Don't** attempt the arm pull in a zigzag fashion, because force is lost.

**Don't** execute the crawl kick by noticeably bending the knees or bring the feet high out of the water, because this limits the drive to the lower leg, and energy is lost.

**Don't** attempt to swim the crawl kick with the ankles flexed or rigid, as it impedes progress and is fatiguing.

**Don't** attempt to swim the crawl kick with the legs far apart, as this retards progress.

### AUSTRALIAN CRAWL

The Australian crawl is advisable for the individual having rigid ankles who, because of this, would not be able to swim the crawl effectively. This stroke differs from the crawl in that it is composed of an alternating arm and leg motion which causes the body to roll from side to side. The force of the kick is derived from the alternating forcible knee flexions, which limit the thrash to the lower leg. In other words, while the left arm is pulling through the water, the right leg is exerting a forcible downward thrash, and vice versa.

### RACING BACK OR ALTERNATE OVER-ARM-BACK-STROKE

This is the speediest of all back strokes. Having learned the crawl, the transition to the racing back is a simple matter; the leg drive is similar and the arms alternate in their pull. The double over-arm-back stroke is another form of the racing back strokes, differing from the alternate over arm in that both arms recover simultaneously. However, this stroke is the less effective of the two.

The progressive steps in learning or teaching this stroke are the same as given in the crawl stroke.

### LAND DRILL

#### Breathing.

Inhale through the mouth on count One! Exhale through the mouth on count Two!

#### FIRST LAND DRILL.

##### 1. Arm Motion.

Starting position—Take!

The starting position for the first land drill is as follows: Stand, body erect, feet together, right arm raised to vertical position and close to the

head, elbows slightly flexed, palm out, the left arm at the side, palm touching the body. Fig. 1. Page 95.

Pull right, recover back left, inhale—One!

While the extended right arm is forcibly pulling down to the right side, causing the body to turn slightly in that direction; the left arm is recovering back, elbow raised, the hand close to the body, following the medium line to reach position above the head, finishing with the palm out. Figs. 1, 2 and 3. Page 95.

Pull left, recover back right, exhale—Two!

Execute count One! substituting left arm for the pull, right arm for the recovery. Figs. 3, 4 and 1. Page 95.

### **Motion Picture Land Drill.**

Practice the above land drill, taking one step backward during each arm pull, or count. This serves as a motion picture land drill, illustrating the propelling power of the stroke.

### **2. Leg Motion.**

Crawl-kick, inhale—One!

Raise the extended left leg forward about six inches, toes pointed; then replace it.

Crawl-kick, inhale—One!

Raise the extended right leg forward about six inches, toes pointed; then replace it.

### **3. Combination of Arm and Leg Motions—The Coordinated Stroke.**

The coordination of the racing back stroke consists of the combination of arm and leg motions according to counts One! and Two! Figs. 1, 2, 3, and 4. Page 95.

Pull right, recover back left, kick, inhale—One!

Pull left, recover back right, kick, exhale—Two!

For the complete analysis of the correct timing or coordination of the stroke, refer to the crawl combination of arm and leg motions, first land drill. Page 88.

## **SECOND LAND DRILL.**

### **1. Arm Motion.**

Starting position—Take!

The starting position for the second land drill is as follows: Lie on the back, feet together, right arm extended to vertical, elbow slightly flexed, palm out, left arm at the side, palm touching body.



The Racing Back or Alternate Over Arm Back Stroke. Figs. 1, 2, 3 and 4. Illustrate counts One! and Two! of the land drill. Fig. 5. Catch position of the right arm. Fig. 6. Recovery of right arm.

Pull right, recover back left, inhale—One!

Pull left, recover back right, exhale—Two!

Counts One! and Two! of the arm motion are the same as described in the first land drill.

## 2. Leg Motion.

Crawl-kick, inhale—One!

Practice the alternate up and down leg thrashes while on the back, with a drive of from eight to fourteen inches, keeping the legs and ankles extended, though slightly relaxed.

Crawl-kick, exhale—Two!

Repeat count One!

## 3. Combination of Arm and Leg Motions—The Coordinated Stroke.

The coordination of the racing back stroke, taken lying down, is the same as described in the first land drills.

Pull right, recover back left, kick, inhale—One!

Pull left, recover back right, kick, exhale—Two!

IMPORTANT NOTE.—While the right arm is forcibly pulling, the relaxed left arm is recovering. Open the legs easily during the recovery, and forcibly bring them together during the drive.

## WATER DRILL

### Breathing.

The breathing should be natural. The rhythm of the breathing may vary, depending upon the need of the individual and the speed of the stroke.

### 1. Arm Motion.

Starting position—Take!

Start from the back-push-off position. Figs. 4 and 5. Page 37.

Then push away from the side of the tank and remain in correct true floating position until the body almost ceases its forward glide. Keep the head well back, chin in, arms at the side, legs extended, toes pointed, knees about two inches apart.

Pull right, recover back left, inhale—One!

Then begin swimming on the back with the arms alone, as described in the above land drills. The arm pull should be about four inches under the water, body rolling slightly to the side of the pulling arm.

Pull left, recover back right, exhale—Two!

Having executed a few strokes, regain standing position. Practice the arm motion until it is executed correctly and with ease.

## 2. Leg Motion.

Starting position—Take!

Start from the back push-off position. Push away and assume correct true floating position, then place the hands on the hips.

Crawl-kick, inhale—One!

Begin swimming with the legs alone as described in the second land drill.

Crawl-kick, exhale—Two!

**IMPORTANT NOTE.**—Be careful not to bend the knees greatly or flex the ankles. Having executed a few fast and rhythmical crawl-kicks; regain standing position. Practice this drill until it is executed correctly and with ease.

## 3. Combination of Arm and Leg Motions—The Coordinated Stroke.

Starting position—Take!

Start from the back-push-off position. Push away and remain in correct true floating position.

Pull right, recover back left, kick, inhale—One!

Pull left, recover back right, kick, exhale—Two!

**IMPORTANT NOTE.**—Figs. 5 and 6. Page 95. While swimming this stroke, during the arm motions recover with the elbows raised sufficiently to clear water surface, hand close to the body, following the median line. Keep the head well back, chin in, body in correct true floating position.

Slightly turn or roll the body to the side of the pulling arm. Like the crawl, this stroke has a two, four, six, or eight beat leg drive. Begin the stroke by pulling with the right arm and executing the first beat with the left leg, finish the complete stroke by pulling with the left arm and executing the last beat with the right leg.

Refer to instructors' note for the racing back stroke. Page 165.

## DON'T

**Don't** swim with the head held forward, because this sinks the feet and is fatiguing.

**Don't** raise the hand high above the body during the arm recovery, as this tends to sink the body.

**Don't** finish the arm recovery in a half flexed position, as this diminishes the length of the arm pull.

**Don't** permit the elbows to drag through the water on the recovery, as it retards progress.

**Don't** attempt the crawl-kick without pointing the toes, because this decreases the power of the kick.

**Don't** attempt to swim the racing back stroke with the body in a half sitting position, because this impedes progress and tends to sink the body.

### THE BREAST STROKE

This stroke may be used in life-saving as a substitute for the trudgeon or crawl. The logical place for the breast stroke is at the end of the series, as it is not a foundation stroke, and is not directly related to any of the preceding strokes and furthermore it is complex and difficult.

The progressive steps in learning or teaching this stroke are:

- (1) Careful analysis of the land drills, arm motions.
- (2) Application of the above land drills, arm motions, in the water.
- (3) Careful analysis of the land drills, leg motions.
- (4) Application of the above land drills, leg motions, in the water.
- (5) Careful analysis of the land drills, combined arm and leg motions.
- (6) Application of the above land drills, combined arm and leg motions, in the water.

Refer to the cardinal points concerning swimming, page 43.

### LAND DRILL

#### Breathing.

Inhale through the mouth during counts One! and Two! by turning the head slightly to the side or front; exhale through the nose, lowering the head during counts Three! and Four!

#### FIRST LAND DRILL.

##### 1. Arm Motion.

Starting position—Take!

(1) Stand, body erect, arms to vertical, thumbs touching, palms forward.

(2) Assume the above described position; then bend the body forward to the imaginary water line. If desired, the first land drill may be analyzed according to starting positions one or two.

(3) Stand, body erect, arms in front horizontal position, thumbs touching, fingers together, palms down, head low. The first land drill will be analyzed according to this starting position. Fig. 1, Page 99.

Pull sideways, inhale—One!

Turn the backs of the hands towards each other and forcibly bring the arms to the side horizontal position. Fig. 2, Page 99.

Bend, inhale—Two!



The Breast Stroke. Fig. 1. Starting position. Figs. 2, 3 and 4. Illustrate counts One! Two! and Three! of the land drill.

Relax the arms; bend the elbows; bring the arms in a semicircular motion towards the chest, finishing with the hands in front of the chest, thumbs touching, palms down. Fig. 3. Page 99.

Extend, exhale—Three!

Slowly extend the arms to starting position. Fig. 4. Page 99.

Hold, exhale—Four!

This position is the same as starting position. Fig. 1. Page 99.

### **Motion Picture Land Drill.**

Practice the above land drill, taking one step forward during the arm pull, or count. This serves as a motion picture land drill, illustrating the propelling power of the stroke.

### **2. Leg Motion.**

Hold, exhale—One!

This position is the same as starting position. Fig. 2. Page 99.

Bend, inhale—Two!

Slowly bring the sole of one foot up along the side of the supporting leg to the knee. Keep the knee well back. Fig. 3. Page 99.

Extend, exhale—Three!

Flex the ankle; forcibly extend the leg to the side. Fig. 4. Page 99.

Snap together, exhale—Four!

Forcibly bring the leg to starting position. Fig. 1. Page 99.

### **3. Combination of Arm and Leg Motions—The Coordinated Stroke.**

The coordination of the breast stroke consists of the combination of arm and leg motions according to counts One! Two! Three! and Four!

Pull arm sideways, inhale—One!

Bend both, inhale—Two!

Extend both, exhale—Three!

Snap legs together, exhale—Four!

Figs. 1, 2, 3 and 4. Page 99.

**IMPORTANT NOTE.**—Count one! which is the arm pull, must be executed forcibly. Counts Two! and Three! are a combination of the arm and leg motions. Counts Three! and Four!, the leg drive, must be executed forcibly.

## **SECOND LAND DRILL.**

### **1. Arm Motion.**

Starting position—Take!

The starting position for the second land drill is as follows: Lie face down, arms extended to vertical position, thumbs touching, palms down, extended legs together and over edge of pool.

Pull sideways, inhale—One!

Counts One! Two! Three! and Four! are the same as described in the first land drill, arm motion.

Bend, inhale—Two!

Extend, exhale—Three!

Hold, exhale—Four!

## 2. Leg Motion.

Hold, inhale—One!

This position is the same as starting position.

Bend, inhale—Two!

Slowly bend the knees, separating them as far apart as possible, heels touching, toes pointed.

Extend, exhale—Three!

Flex the ankles and extend the legs to the side, pushing forcibly with the soles of the feet.

Snap together, exhale—Four!

Forcibly bring the legs together.

## 3. Combination of Arm and Leg Motions—The Coordinated Stroke

The coordination of the breast stroke taken lying down is the same as described in the first land drill.

Pull arms sideways, inhale—One!

Bend both, inhale—Two!

Extend both, exhale—Three!

Snap legs together, exhale—Four!

## WATER DRILL

### Breathing.

Inhale through the mouth during counts One! and Two! by raising the head or turning it slightly to the left; exhale through the nose during counts Three! and Four! submerging the face.

### FIRST WATER DRILL.

#### 1. Arm Motion.

Starting position—Take!

Stand in the pool, shoulders submerged, arms extended front horizontal, thumbs touching, fingers together, palms resting on water surface.

Pull sideways, inhale—One!

Practice the arm motion as described in the above land drills, first executing the drill with the head raised above water surface, then practice the arm motion with breathing. Finish the arm pull with the arms about four inches under the water.

Bend, inhale—Two!

Extend, exhale—Three!

Hold, exhale—Four!

#### **SECOND WATER DRILL.**

Starting position—Take!

Start from the face-submerged push-off position. Inhale; push away and assume a correct face-submerged floating position. Figs. 2 and 3. Page 29.

Pull sideways, inhale—One!

Practice the arm motion as described in the above land and water drills, first executing the drill with the head submerged, holding the breath; then practice the arm motion with breathing.

Bend, inhale—Two!

Extend, exhale—Three!

Hold, exhale—Four!

IMPORTANT NOTE.—Having executed a few strokes regain standing position. Practice this until it is executed correctly and with ease.

#### **FIRST WATER DRILL.**

##### **2. Leg Motion.**

Starting position—Take!

Face the side of the tank, grasp the railing with the left hand; place the palm of the right hand against the side of the tank about eight inches under the water, with the fingers pointing down, thumb out.

Hold, inhale—One!

Practice the leg kick as described in the second land drill, first executing the drill with the head raised above water surface; then practice the leg motion with breathing.

Bend, inhale—Two!

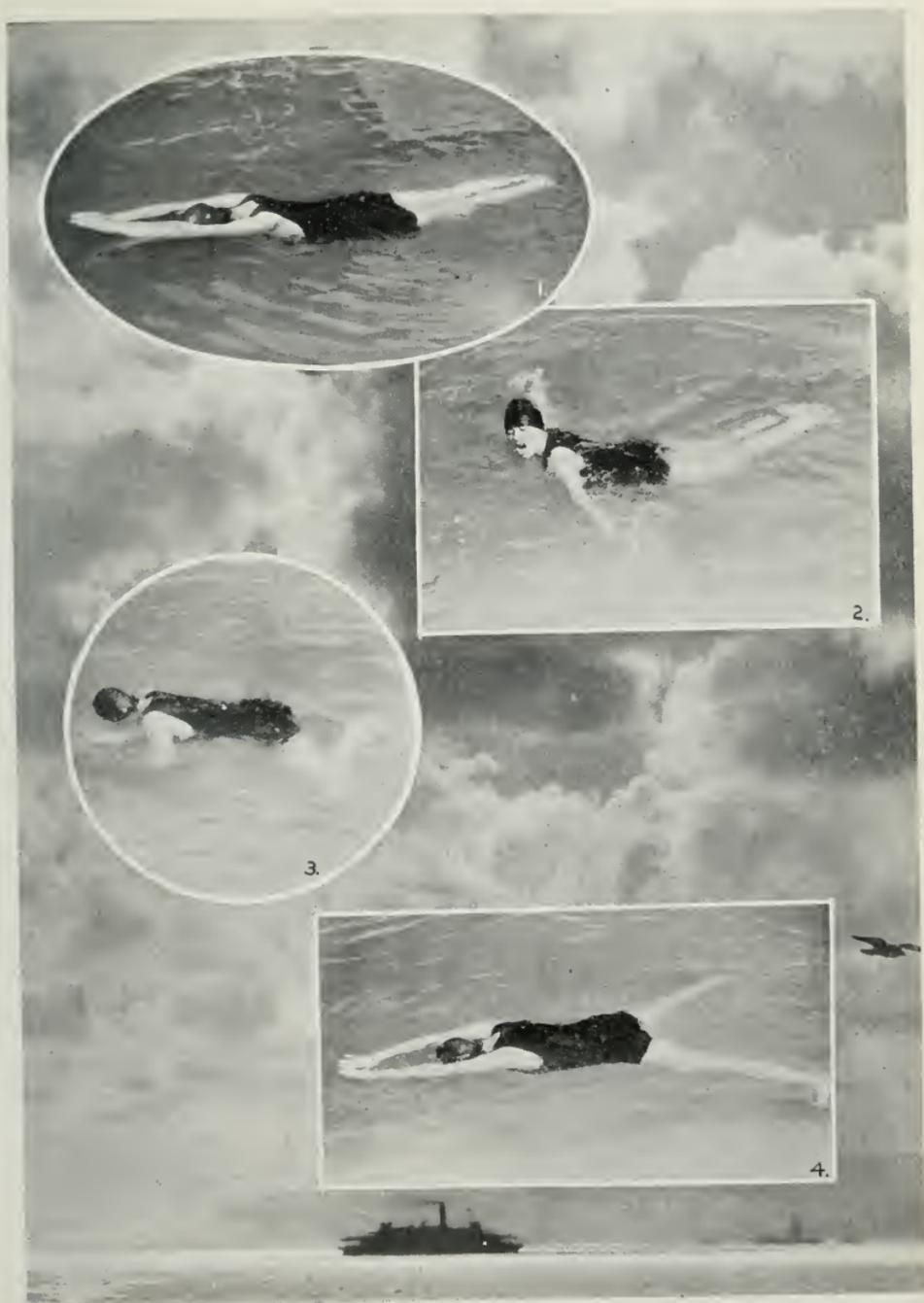
Extend, exhale—Three!

Snap together, exhale—Four!

#### **SECOND WATER DRILL.**

Starting position—Take!

Start from the face-submerged-push-off position. Inhale; push away and assume the correct face-submerged-floating position. Figs. 2 and 3. Page 29.



The Breast Stroke. Fig. 1. Starting position. Figs. 2, 3 and 4. Illustrate counts One! Two! and Three! of the water drill.

Hold, inhale—One!

Practice the leg kick as described in the second land drill, first executing the drill with the head submerged, holding the breath; then practice the leg motion with breathing.

Bend, inhale—Two!

Extend, exhale—Three!

Snap together, exhale—Four!

### 3. Combination of Arm and Leg Motions—The Coordinated Stroke

Starting position—Take!

The starting position is the same as described for the leg motion in the second water drill.

Pull arms sideways, inhale—One!

Begin swimming with the arms and legs together as described under the coordinated stroke in the above land drills. Figs. 1, 2, 3 and 4, Page 103.

Bend both, inhale—Two!

Extend both, exhale—Three!

Snap legs together, exhale—Four!

**IMPORTANT NOTE.**—Execute the arm and leg motions as one continuous movement with as little jerk to the stroke as possible. A slight hold at the end of the fourth count is advisable as a means of resting the body during the forward glide. However, for racing purposes omit the hold. Refer to the important note given in the first land drill, for the combination of arm and leg motions.

Refer to instructors' note for breast stroke. Page 165.

### DON'T

**Don't** swim with the head held too high out of the water, because this causes the body to drag.

**Don't** apply force on the second count while the arms and legs are being flexed, because this retards progress.

**Don't** kick down against the water, for in this way force is lost during the leg drive.

**Don't** forget on count Three! to push forcibly against the water with the soles of the feet, ankles flexed, because lack of force here impedes progress.

**Don't** forget to keep the body parallel with and as near water surface as possible, since in this position one offers less resistance, and avoids body drag.

## IV

## RACING TURN—TREADING WATER—PLUNGE FOR DISTANCE

## RACING TURN

Speed swimming requires the knowledge of a correct rapid turn in either direction.

The progressive steps in learning or teaching the racing turn are :

- (1) Careful analysis of the land drill, combined arm and leg motions.
- (2) Application of the above land drill, combined arm and leg motions in the water.

## LAND DRILL

Starting position—Take!

Stand a few feet from the wall, bend the body forward to the imaginary water line.

Touch wall—One!

Touch the wall with the hand of the flexed recovering left arm, fingers pointing to the right. The right arm at the side of the body. Fig. 1. Page 107.

Inhale—Two!

Turn body—Three!

Turn the body to the right by pushing hard against the wall with the left hand, at the same time quickly bring the right arm to the rear of the hips; then forcibly push the body back against the wall, with a forward scooping motion, finishing with the right arm in front horizontal, palm up. Place the sole of the left foot against the wall; lower the head; place both arms in a front horizontal position, thumbs touching, palms down. Figs. 2 and 3, Page 107.

Push away, exhale—Four!

Forcibly extend the leg and push the body away from the wall.

IMPORTANT NOTE.—The above land drill may be practiced in the same manner starting with the right hand touching the wall, as shown in the figures. If the right hand touches the wall the body must turn to the left.

## WATER DRILL

## FIRST WATER DRILL.

Starting position—Take!

Stand in the water a few feet from the side of the tank, shoulders submerged. Then assume the correct starting position for the arms as described in the trudgeon stroke, arm motion.

Touch wall—One!

Counts One! Two! Three! and Four! are the same as described in the above land drill and should be executed quickly and forcibly as one continuous motion.

Inhale—Two!

Turn body—Three!

Push away, exhale—Four!

Forcibly push away and glide in the face-submerged-push-off position, then regain standing position.

#### SECOND WATER DRILL.

Starting position—Take!

Swim towards the side of the tank with a trudgeon or crawl stroke. When nearing the side of the pool adjust the distance by taking a few shorter strokes or lengthen the stroke, in order that the hand of either flexed arm will touch the wall.

Touch wall—One!

Touch the wall with the hand of the flexed recovering left arm, fingers pointing to the right, hand just above water surface, the right arm at the side of the body. Remember that if the left hand touches the wall the body must turn to the right and vice versa. Fig. 4. Page 107.

Inhale—Two!

Inhale through the mouth, raising it sufficiently to clear water surface.

Turn body—Three!

Submerge the head; turn the body quickly to the right, by pushing hard against the wall with the left hand. At the same time bring the right arm to the rear of the hips; then forcibly push the body as near the side of the tank as possible with a forward scooping motion, finishing with the arms in front horizontal position, palms down. At the same time, bend the knees and place the soles of the feet against the side of the tank about eight inches under the water. Fig. 5. Page 107.

Push away—Four!

Forcibly push away from the side of the tank and glide in the face-submerged-push-off position. Before the momentum of the glide ceases, if one swims the crawl, begin the leg thrash, then the arm movement.

If one swims the trudgeon stroke, begin the arm movement first. Practice the turn until it can be done correctly and with ease. Fig. 6. Page 107.

Refer to instructors' note for Racing Turn. Page 166.

#### DON'T

Don't forget to inhale before the turn, as a deep breath is necessary for the glide.



Racing Turn. Fig. 1. The Touch. Fig. 2. Body Turn. Fig. 3. Push off. Fig. 4. The Touch. Fig. 5. The Push-off. Fig. 6. The Glide.

**Don't** forget to flex the elbow of the hand touching the wall, as this makes a quick and correct turn possible.

**Don't** forget to use the free arm as a means of pushing the body back towards the side of the tank, as this is necessary in gaining the correct push-off position.

**Don't** attempt to push away with the legs extended, soles of feet far below the water surface, because the push away would be impossible.

## TREADING WATER

Treading water is of value in life-saving, water sports, and as a means of resting the body while swimming.

### WATER DRILL

#### FIRST WATER DRILL.

Starting position—Take!

Start with the body in a vertical floating position, head slightly back, chin up, arms side horizontal or hands on hips.

Flex left knee, extend right knee—One!

The body is raised slightly out of the water by continuous alternate leg flexions and extensions. While the left knee is being slightly flexed, ankle extended; the right knee is being forcibly extended, ankle flexed, pushing down against the water. This movement resembles walking upstairs.

Flex right knee, extend left knee—Two!

Repeat count One! starting with the right leg and finishing with the left.

#### SECOND WATER DRILL.

Practice treading water as described above in addition use a sculling arm motion.

## PLUNGE FOR DISTANCE

Starting position—Take!

Assume correct starting position for a shallow dive. Before taking the plunge breathe in and out deeply three or four times. Fig. 4. Page 113.

Dive—In!

After the last inhalation, forcibly spring forward, enter the water with the body in a straight line; that is, arms and legs extended, heels and knees touching, toes pointed. Fig. 5. Page 113. The depth one should assume depends upon the body buoyancy and build of the individual. It varies from three to five feet. Gradually rise to the surface, keeping the body extended. Continue the plunge until the momentum of the glide has ceased. Fig. 6. Page 107. One should not hold the breath for more than one minute.

## V

## DIVING

Diving is essential as a correct means of entering the water, is also of value in life-saving, and is one of the most graceful and pleasurable of aquatic sports. When the pupil is able to swim one or more strokes correctly and with perfect confidence in deep water, diving should be taught.

The progressive steps in learning or teaching diving are:

- (1) The Rudiments of Diving.
- (2) Elementary Diving.
- (3) Advanced Diving.

## THE RUDIMENTS OF DIVING

## FIRST STEP—THE PRELIMINARY PORPOISE DIVE.

Starting position—Take!

Stand in the water, waist deep, arms front horizontal, palms down, thumbs locked, head down, chin touching the chest, knees slightly flexed.

Inhale!

Dive—In!

Quickly dive under the water by bending forward, at the same time spring off the bottom of the pool by straightening the flexed knees. When the entire body is submerged, quickly come to the surface by pointing the fingers up and raising the head and shoulders.

## SECOND STEP—THE SITTING FALL-IN.

Starting position—Take!

Sit on the edge of the pool, feet apart resting on the railing. Bend the body forward until the chin touches the chest; extend the arms in front of the head covering the ears, thumbs locked. Fig. 1, Page 111.

Inhale!

Dive—In!

Enter the water, holding the arms and head in starting position until the body is submerged. Then quickly come to the surface. Fig. 2, Page 111.

**IMPORTANT NOTE.**—The head largely controls the position of the body, while in the air and entering the water; it acts as a weight carrying it forward and under. When the body is submerged, quickly come to the surface by pointing the fingers up and raising the head and shoulders.

## THIRD STEP—KNEELING FALL-IN.

Starting position—Take!

Kneel on the edge of the pool, arms and head held in the same position as described in the second step. Fig. 3, page 111, and Fig. 4, page 115.

Inhale!

Dive—In!

Refer to second step for complete description.

## FOURTH STEP—STANDING FALL-IN.

Starting position—Take!

Stand, toes gripping the edge of the pool, body bent forward, head down, arms extended, thumbs locked. Fig. 4, Page 111.

Inhale!

Dive—In!

Enter the water by rising on the toes, falling forward, *holding the entire body in starting position until it is submerged*. Remember not to stiffen or straighten the body when falling forward as one will fall flat on the water surface. Fig. 5. Page 111.

## ELEMENTARY DIVING

After the novice has learned the above progressive rudimentary steps he is then ready for elementary diving.

## FIRST STEP—STANDING DIVE.

Starting position—Take!

Assume a correct starting position, toes gripping the edge of pool, bend the body forward as far as possible, chin touching the chest, extended arms in front of the head, covering the ears, thumbs locked. Flex the knees. Fig. 1, page 113, and Fig. 3, page 115.

Inhale!

Dive—In!

Enter the water by rising on the toes; quickly straighten the knees. Hold starting position, head down, body bent forward until the entire body is submerged. In a correct elementary dive the body should enter the water at an angle of about forty-five degrees, arms and legs extended, ankles touching, toes pointed, thumbs locked, serving as a protection to the head. Fig. 2. Page 113.



The Rudiments of Diving. Figs. 1 and 2. Sitting dive—starting position and dive in. Fig. 3. Kneeling dive—starting position. Figs. 4 and 5. Standing dive—starting position and dive in.

## SECOND STEP—STANDING DIVE.

Starting position—Take!

The starting position is the same as described for the preceding dive, except that the knees are straight. Fig. 4. Page 111.

Inhale!

Dive—In!

Execute the spring of the dive by quickly bending and straightening the knees. Enter the water with the head down, extended arms covering the ears. Fig. 2. Page 113.

## THIRD STEP—STANDING DIVE.

Starting position—Take!

Stand, body erect, feet together, toes gripping the edge, arms front horizontal and about twelve inches apart. Fig. 3. Page 113.

Inhale!

Dive—In!

Rise on the toes; bend the knees and forcibly swing the arms backward; then quickly straighten the knees and forcibly swing the arms over and forward, entering the water with the thumbs locked, head down. Execute the arm swing and spring as one continuous motion.

## FOURTH STEP—STANDING DIVE.

Starting position—Take!

The starting position is the same as described for the preceding dive. Fig. 1. Page 115.

Inhale!

Dive—In!

Execute the spring and at the same time quickly and forcibly *bend the body forward, head down*, thumbs locked. Enter the water as described in the preceding dive.

## FIFTH STEP—RACING DIVE.

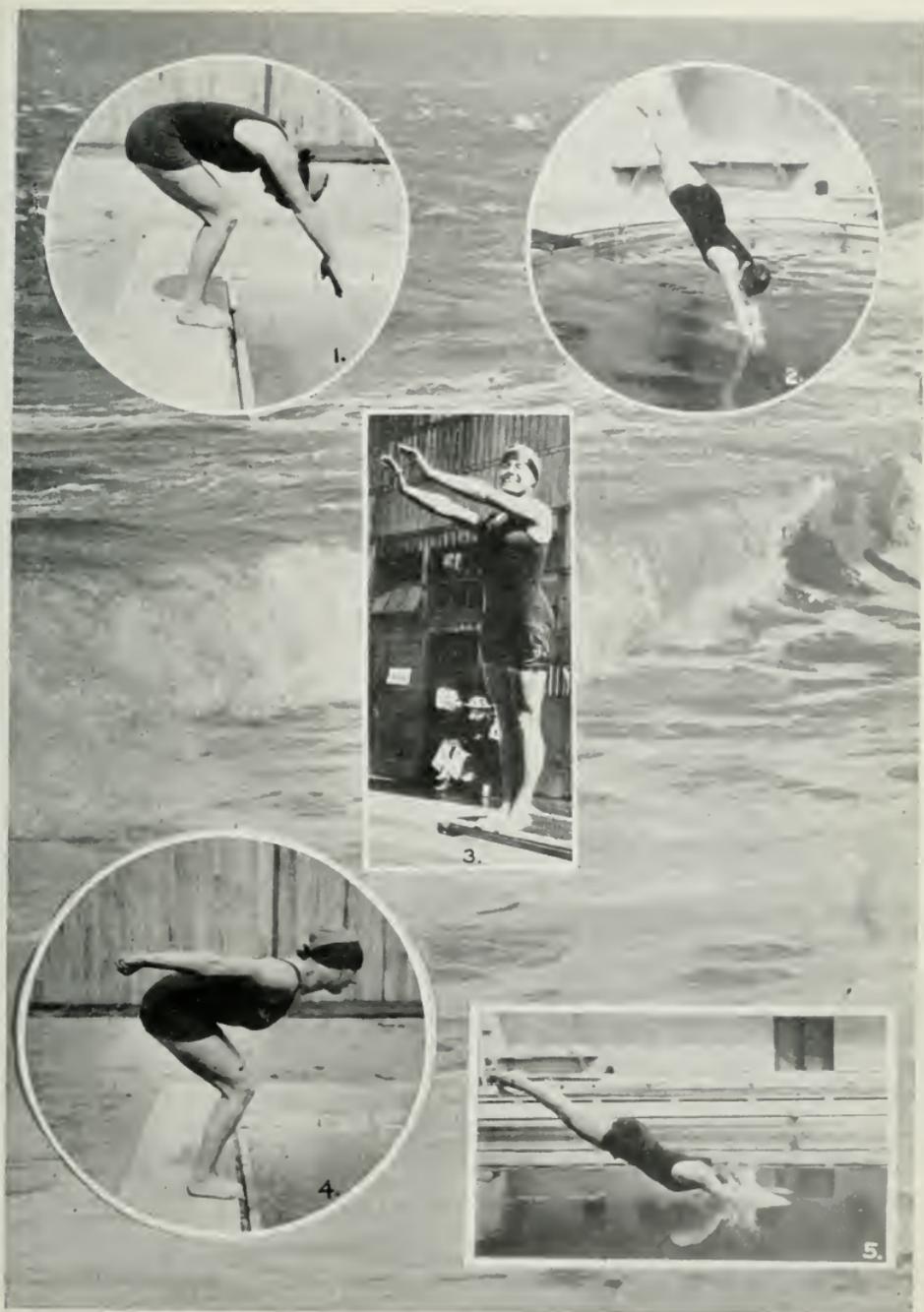
Starting position—Take!

Stand with the toes gripping the edge of the pool, knees flexed, body bent forward, head up, extended arms to the rear. Fig. 4. Page 113.

Inhale!

Dive—In!

As the arms are forcibly extended forward, straighten the knees and incline the body forward, jumping out as far as possible. While in the air the body is close to the water surface, arms and legs extended, head slightly raised. Enter the water with the head down, body just under the surface. Then lie in the face-submerged floating position, until the body glide is nearly expended, then begin swimming. Fig. 5. Page 113.



Elementary Diving. Figs. 1 and 2. Standing dive with spring-starting position and in. Fig. 3. Starting position for a plain dive. Figs. 4 and 5. Racing dive—starting position and in.

## ADVANCED DIVING

The following dives are essential as a foundation for the more advanced and fancy diving. Practice on a regulation spring-board which is at least three feet above the water.

### Spring Board Diving—The Swan Dive

The Preliminary Steps in Learning the Swan Dive from the Spring-Board.

#### FIRST STEP—ARM SWING AND SPRING.

Starting position—Take!

Stand, body erect, arms at the side of the body, toes gripping the edge of board.

Inhale!

Dive—In!

Spring up, at the same time swing the arms forward and up, finishing in side horizontal position. Hold the swan position upon leaving the board, then enter the water with the head down, arms extended, thumbs locked.

#### SECOND STEP—ARM SWING AND SPRING.

Starting position—Take!

Stand, body erect, arms front horizontal, toes gripping the edge of the board.

Inhale!

Dive—In!

Rise on the toes, bend the knees, and forcibly swing the arms down to the side of the body; then quickly and forcibly straighten the knees and swing the arms forward and up, finishing in side horizontal position. Quickly execute the arm swing and spring as one continuous motion. Hold a swan position upon leaving the board; then enter the water correctly.

#### THIRD STEP—LEARNING TO WORK THE BOARD.

Starting position—Take!

Stand near the end of the board, body erect, arms at the side.

(1) In learning to work the board one should execute three or four continuous springs in place. In jumping on the end of the board, light on the balls of both feet, knees straight, arms at the side. Rebound from the board by means of a forcible wide arm swing, timed with the board. At first, strive for correct balance, then for height. Remember to keep the body perpendicular, head erect. Fig. 1, Page 117,



Class Drill in Diving. Fig. 1. Land drill for diving. Figs. 2 and 4. Starting positions for rudimentary diving. Fig. 3. Starting position for elementary diving.

(2) Practice the above spring board drill, and after two or three jumps let the board lift the body into the air. Hold the swan position on leaving the board; then enter the water correctly.

#### FOURTH STEP—ANALYSIS OF THE STEP AND TAKE-OFF.

Starting position—Take!

Body erect, arms at the side, left or right foot forward.

Take one short quick running step towards the end of the board; then spring from the ball of the forward foot, and at the same time, lift the body as high as possible by means of the forward upward arm swing. Descend to the board from the spring and rebound from the balls of both feet. Hold the swan position upon leaving the board, then enter the water correctly.

#### FIFTH STEP—ANALYSIS OF THE RUN AND TAKE-OFF.

Starting position—Take!

Before attempting the swan dive measure the distance by taking four short running steps forward. Execute the last step quickly and with a forcible spring and arm swing. The final springs should be taken near the end of the board, body erect.

#### SIXTH STEP—THE RUNNING SWAN DIVE.

Starting position—Take!

Assume the correct standing position near the firm end of the board.

Take three or four short easy running steps of equal distance. On the last step forcibly jump up, leaping from the ball of one foot, and straighten the flexed knee. At the same time lift the body as high as possible by the forcible wide upward arm swing. Descend to the board from the spring, knees straight, and rebound from the balls of both feet. If executed correctly the spring of the board will carry the body high into the air. A correct dive requires height and absolute control of the body while in the air. Keep the extended legs together, toes pointed, arms to the side in the swan position. Then enter the water at an angle of about seventy-five degrees, head down, arms extended, thumbs locked. Fig. 2. Page 117.

### Back Dive

#### FIRST STEP—BACK DIVE.

Starting position—Take!

Stand with the heels over the edge of the board or platform; body erect, arms front horizontal, shoulder width apart. Adjust balance, then raise the arms to the vertical position, covering ears, thumbs locked.



Advanced Diving. Fig. 1. Working the board. Fig. 2. Swan dive. Fig. 3. Back-dive. Fig. 4. Jack-knife dive.

Inhale!

Dive—In!

Execute the first position by bending the head back and arching the body; hold this position until the body enters the water and is submerged; then come to surface.

#### SECOND STEP—BACK DIVE.

Starting position—Take!

This is the same as described in the first position in the back dive.

Inhale!

Dive—In!

Execute the second position by first springing up, then arch the body and enter the water correctly.

#### THIRD STEP—BACK DIVE.

Starting position—Take!

Stand with the heels over the edge of the board, body erect, arms front horizontal.

Inhale!

Dive—In!

Rise on the toes; bend the knees and forcibly swing the arms down to the side of the body; then quickly and forcibly straighten the knees and swing the arms up to vertical position. Quickly execute the arm swing and upward spring as one continuous motion. After gaining height from the spring, arch the body backward and enter the water correctly. Fig. 3. Page 117.

### Front-Jack-Knife-Dive

Starting position—Take!

Assume the correct starting position on the board as described in the sixth step of the swan dive.

In executing the front-jack-knife dive work the board correctly as described for the swan dive. Jump with the body erect, obtaining the maximum amount of height, then quickly bend the body forward at the waist, touching the ankles, legs straight, toes pointed. Hold the jack-knife position for a moment, then straighten the body and enter the water correctly. Fig. 4. Page 117.

### Back-Jack-Knife-Dive

#### FIRST STEP—LEARNING THE BACKWARD SPRING.

Starting position—Take!

Stand with the body erect, heels over the edge of the board, arms front horizontal, shoulder width apart, and adjust balance. Forcibly swing the

arms and at the same time spring well up and back, clearing the board at least three feet. Enter the water feet first.

The novice should not attempt the second step until he is able to jump at least three feet backward, as this is necessary in avoiding a collision with the board.

#### SECOND STEP—ANALYSIS OF THE BACK-JACK-KNIFE.

Starting position—Take!

The starting position is the same as described in the first step of the jack-knife-dive.

Swing the arms, at the same time quickly and forcibly spring up and back, gaining sufficient momentum to clear the board. Immediately after obtaining the backward spring, bend the body forward at the waist, then quickly straighten the body and enter the water correctly.

#### THIRD STEP—THE BACK-JACK-KNIFE.

Starting position—Take!

The starting position is the same as described in the first step of a jack-knife-dive.

After attaining balance jump well up and out, bend the body forward touching the ankles, hold this position for a moment, straighten the body and enter the water correctly. Remember that the forcible arm swing and spring upward are essential for this dive.

### Platform Diving

The principles of platform diving are similar to spring-board diving except the diver's height is dependent upon his arm swing and spring. Before attempting high diving obtain correct form from the five or ten foot platform. The following points are necessary for a correct dive: (1) Start with the body erect. (2) Obtain the maximum height. (3) Hold the body in correct form while in the air. (4) Enter the water with the body extended, thumbs locked, head down. The angle of entry should be about seventy-five degrees.

### DON'T

**Don't** attempt to dive without first taking a deep breath.

**Don't** attempt to dive without first assuming correct standing position.

**Don't** forget that a forcible arm swing and spring is necessary in gaining height.

**Don't** fall forward, but spring up and out.

**Don't** flex the knees or ankles, or separate the legs while in the air.

**Don't** attempt to enter the water without first covering the *lowered head* with the extended arms, thumbs locked.

**Don't** attempt to rise to the surface until the body is submerged, as one is likely to injure the back.

**Don't** attempt to rise to the surface by just turning the hands up, but bend the head back and raise the shoulders.

**Don't** attempt a deep dive in unknown waters, but jump feet first.

## VI

## LIFE-SAVING

How needless is the yearly death toll due to drowning. And yet, did it ever occur to you that you are responsible? That is, you are responsible if ignorant of the fundamental principles of swimming and life-saving. If you have ever witnessed the frenzied struggle of a drowning victim, although unable to offer assistance, you could not help but feel your guilt. The majority of drownings occur either because of ignorance on the part of the victim or the rescuer.

The term education should not apply to any one who has not mastered the rudiments of swimming and life-saving. To learn to swim is a splendid and necessary part of one's education, but the final objective should be also a thorough knowledge of life-saving, for one never knows when he may be called upon to save the life of another.

The reason we hear of a person drowning in the presence of accomplished swimmers is due to the lack of knowledge in life-saving and the fear of the so-called "death-grip." In reality the "death-grip" is only the misused phrase of the uninformed. If the rescuer is familiar with the various release and rescue methods, all fear is needless; however, it is best to approach the struggling victim from the rear. The drowning person, when struggling for his life, frantically clutches anything, but as soon as the victim is given air, and feels he is being carried to safety all struggles will cease.

We also hear of a "good swimmer" being drowned, but this is usually due to the following: (1) heart failure, (2) foolishly venturing beyond one's distance, and having insufficient energy to return, (3) encountering dangerous tide conditions, (4) swimming immediately after a hearty meal, (5) being seized with a cramp and becoming excited.

Not only is individual instruction in swimming and in life-saving necessary, but as a means of more effectively fortifying all bathing places, the complete and proper equipment should be installed. It is necessary to have stationed at regular intervals, posts with revolving reels, with at least five hundred yards of rope securely fastened to a life-buoy. If possible there should be one or more fully equipped motor or row boats for life-saving. A catamaran is also very useful.

George Douglas Freeth, one of the world's greatest life-savers, leader and teacher of swimming, diving, life-saving, and aquatic sports, contributed one of the most valuable motor-driven life-saving apparatus. His invention consisted of a three-wheeled motorcycle with a revolving wheel containing sixteen hundred feet of cable wire attached to an air tank, used

for rescue purposes, also a six-foot box carrying complete life-saving equipment, the cover of which could be used for resuscitating purposes. Fig. 2. Page 143.

### METHOD OF PROCEDURE FOR ACTUAL RESCUE

The following suggestions serve as a practical application of the land drills given in the text, and also emphasize the important steps which occur in an actual rescue.

#### 1. The Danger Signal of One in Distress.

- (1) The victim frantically raising the arms.
- (2) Body disappearing and reappearing for one or more times, depending upon the amount of air in the lungs.
- (3) Body floating face down.
- (4) Boat or canoe capsized.

#### 2. To the Rescue.

- (1) Quickly but calmly determine the best method of rescue and act accordingly.
- (2) Quickly remove shoes and heavy outer clothing.
- (3) When rescue necessitates diving into unknown waters jump feet first, or in a sitting position.
- (4) If possible when attempting rough water or long distance rescue use the life-boat equipped with life-buoys, lines, oars, and anchor. Remember to point the bow towards the waves while launching the boat and if possible while going to the rescue. When nearing the victim throw out line and buoy or grasp him. Then lift the body over the stern, never over the side. If the body has disappeared, dive from the stern and recover body as quickly as possible.
- (5) If a life-boat is not available when attempting rough water or distance rescue, it is best to use life-buoy and line regulated by an assistant on shore. However, if this is not available use any object which will keep the body afloat; as an inflated automobile tube, etc.
- (6) If none of the above resources are at hand swim with a long steady stroke, conserving as much energy as possible for returning with the rescue.
- (7) Where one has to contend with currents, if possible first signal for assistance. Then map out the best course, taking advantage of the tide, and avoid "bucking" the current.



Life-Saving Release Methods—Land Drills. Fig. 1. Wrist grasp. Fig. 2. Break. Fig. 3. The body turn and hold after release. Fig 4. Front neck grasp. Fig 5. Break.

- (8) If the victim has disappeared, keep an eye on the spot where last seen. If the place of drowning is not known, look for bubbles; in calm water they will rise perpendicularly, in running water diagonally down the stream.

### 3. The Rescue.

- (1) For an ice rescue, place silk or wool over the ice, as it adheres and assists one in climbing out. If the ice is thin, spread out as much as possible, distributing body weight, and crawl over the ice.
- (2) In muddy water, repeated surface dives are necessary. Bear in mind or mark the section which has been thoroughly explored.
- (3) If the drowning person is out of sight, execute a surface dive, swimming with a breast or side stroke under water, head held down. When the body is located take hold of the hair or suit with one hand. Then push off the bottom if firm, if muddy swim to the surface. Rescuer should not remain under water too long at a time during the surface dive, as it is very fatiguing and one must conserve energy for the return.
- (4) If possible, approach the struggling person from the rear, but one must be able to break the hold from any position.
- (5) *The Grapple.* When nearing the victim who is about to frantically grasp you from the front, first take a deep inhalation; then protect yourself by either extending the flexed legs against the victim's chest or quickly force the struggling person back by gripping the victim's mouth and chin firmly with the hand, thumb and forefinger holding nose; then place the right knee against the victim's abdomen; quickly extend the arm and knee, thereby freeing yourself, or quickly grasp the victim's wrist, twisting the arm down, thereby turning his body away from you. Be alert to the situation and do not permit the drowning person to take advantage of you, thus placing yourself in a precarious position.
- (6) *The Wrist Break.* If grasped by the wrist while attempting to rescue victim, first take a deep inhalation, then quickly and forcibly swing the arms down and out, applying force against the victim's thumbs. Figs. 1 and 2, Page 123. Fig. 1, Page 129. Or if grasped with the victim's thumbs on the outside, force up and out. Immediately after the break, grasp the victim's wrist, right hand to right or left hand to left, turning the victim away from you. Fig. 3. Page 123; Fig. 4, Page 135. Then assume correct carry position. It is necessary for the rescuer to grasp the wrist immediately after each break, in order to protect himself from further attacks and also to maintain hold of the drowning person throughout.

- (7) *The Front Neck Break.* If grasped about the neck, while attempting rescue from the front, inhale, then firmly grip the victim's arms by placing the palms of hands under the elbows. Break the front neck grasp by quickly and forcibly raising the victim's arms over his head, and immediately swinging them over and down to the right side (or left side). Quickly grasp the victim's wrist and turn body away from you. Immediately assume carry position. Refer to text for other break methods for the front neck hold. Figs. 4 and 5, Page 123; Fig. 2, Page 129.
- (8) *The Body Break.* If grasped about the body while attempting a rescue from the front apply the same method used for the front neck hold, or break the grasp by forcing up with one hand and extending the knee against the victim's abdomen. Then quickly grasp the victim's wrist, turn the body away and assume the correct carry position. Figs. 1 and 2, Page 127; Fig. 2, Page 129; Fig. 5, Page 135.
- (9) *Rear Neck Break.* If grasped about the body or neck from the rear while attempting a rescue, take a deep inhalation, then quickly turn the thumbs back, or separate the victim's arms. At the same time the rescuer should quickly force his hips against the victim's, then duck down and out to the side, maintaining hold of one of the victim's wrists, then quickly turn body in position for carry. Figs. 4 and 5, Page 127; Fig. 3, Page 129.

#### 4. Returning With Rescued.

After the break and body turn it is necessary for one to use the correct carry method with a struggling person or one not struggling. Remember to keep the victim's body in a horizontal position during the carry and the mouth raised sufficiently to clear the water surface.

- (1) *The Side Head Carry for a Struggling Victim.* The side head carry is the best way to rescue a struggling person. The rescuer places the palm of the left hand on the victim's chin, with the fingers gripping the lower jaw, the arms slightly flexed. Place the victim's body over the left hip, swim with an under arm side stroke. (If a person swims on the left side the reverse would apply.) If the victim attempts to clutch you during the carry, submerge his face, tightening the grip for a few seconds or until struggling has ceased. Then assume correct carry position and continue swimming. Fig. 3, Page 133.

- (2) *The Side Chest Carry for a Struggling Person.* The side chest carry may also be used for a struggling victim. For complete description refer to the text. Fig. 2. Page 133.
- (3) *Head or Under Arm Carry, when Victim is not Struggling.* When the victim is not struggling use the head or under arm carry methods, as described in the land drills. Fig. 5. Page 129; Fig. 1. Page 133.
- (4) *Cramp or Fatigued Person Carry.* When one is temporarily handicapped or fatigued, carry to safety by the fifth rescue method as described in the text. Fig. 4. Page 129.
- (5) Remember to swim with a long steady stroke, conserving energy.
- (6) Upon reaching the shore, if the victim is heavy call for aid; however, if assistance cannot be had, drag the victim out of the water or roll the body to a point of safety.
- (7) If the victim is not too heavy, and while in the water, place him over the lower part of the back, one arm holding the victim's arm, the other gripping his leg. Do not carry the victim for a long distance but begin resuscitation at once, as a few minutes may mean the loss of a life. Fig. 3. Page 127.

## 5. Safety First Measures in Resuscitation.

- (1) Immediately summon medical aid.
- (2) Remember that the individual having a knowledge of life-saving and resuscitation should be given preference, regardless of age or sex. Often a life has been lost through the interference of those armed with authority but lacking in knowledge.
- (3) Place the extended body face down, head resting on the arm as in the Schäfer Method.
- (4) Remove tight clothing so that it will not interfere with breathing.
- (5) Remember how, when, and where to exert pressure and release. Figs. 4 and 5. Page 133.
- (6) While resuscitating, apply heat to the feet, and if possible cover the victim with blankets.
- (7) Remember that the apparently drowned have been revived after being under water as long as thirty minutes. Work incessantly for at least three hours. Time and energy is not to be considered when it means the recovery of life.
- (8) After normal respiration has been established the following precautions are necessary: (a) aid the circulation by rubbing the arms



Life-Saving Release Methods—Land Drills. Fig. 1. Body grasp. Fig. 2. Break. Fig. 3. Land carry. Fig. 4. Rear neck grasp. Fig. 5. Break.

and legs toward the heart, (b) Remove wet clothing, place well covered hot water bottles or hot stones under the arm pits, or at the soles of the feet, and a heated flannel across the abdomen.

- (9) Do not give large doses of stimulants, a teaspoonful at a time is best, and then only after normal respiration has been established.
- (10) Keep the victim in a quiet, well ventilated room, watch for any signs of relapse.
- (11) Other methods of resuscitation are the Silvester, Howard, and Marshall Hall. The Schäfer and Sheffield methods are superior to others, first, because of their simplicity; second, they necessitate only one individual to resuscitate and require the least expenditure of energy; third, because of the prone position, the tongue naturally falls forward; fourth, this method approximates natural breathing, filling the lungs with a greater amount of air than in normal respiration. The resuscitation methods are not only effective for restoring the apparently drowned, but can be used in cases of smoke suffocation, gas or electric shock.

## PRELIMINARY LIFE-SAVING DRILLS

The object of these preliminary drills is to instruct one in the necessary steps in life-saving.

### 1. Plain Diving.

- (1) Execute a racing or shallow dive correctly.
- (2) Execute a plain dive or jump feet first from a five or ten-foot platform. When a rescue in unknown waters necessitates diving, jump feet first.

### 2. Swimming With Clothes On.

It is necessary to remove the heavy outer clothing before attempting a rescue; as shoes, coat, trousers or skirt.

However, one may be called upon to remove clothing while in the water as the result of a boat or canoe capsizing.

- (1) Swim twenty-five yards dressed, wearing apparel consisting of waist or coat, trousers or skirts, and shoes.
- (2) Undress while in deep water, approximate the true floating position, keeping the body submerged as much as possible; first remove the shoes, then coat or waist, trousers or skirt, then continue swimming for fifty yards without stopping.



Life-Saving Release and Rescue Methods—Water Drills. Fig. 1. Wrist Break. Fig. 2 Front neck break. Fig. 3. Rear neck break. Fig. 4. Cramp or fatigued persons carry. Fig. 5. Head carry.

### 3. Surface Diving and Bringing Up Object.

It is necessary for one to execute a surface dive in order to bring up an object or body.

- (1) While treading water, inhale; then forcibly duck the head down and under, at the same time bend sharply at the waist; now forcibly "kick up the legs." This weight over the head tends to drive the body down.
- (2) In order to continue the downward course, swim the breast or side stroke, keeping the head down.
- (3) While on the bottom, grasp the six-pound weight; place it on the hip; push off from the bottom or swim to surface, being careful to hold the weight on the hip while swimming to the edge of the pool.

In an actual rescue, if the position of the body is not known, look for bubbles. In still water they will rise perpendicularly, in running water diagonally.

Execute a surface dive for the body. When found, grasp the hair or suit. If the bottom is firm, push off; but if it is soft and muddy swim to surface with a forcible leg kick and arm pull. Then use the correct carry method.

### 4. Strokes Necessary for Rescue Work.

- (1) If possible practice motionless floating for one minute, but if body displacement is heavier than the water, use a sculling arm motion or crawl-kick.
- (2) Practice treading water for at least three minutes. One may also use a sculling arm motion.
- (3) Swim twenty-five yards on the back, using the elementary back stroke, legs alone, arms extended, hands held above water surface as though towing an object.
- (4) Swim twenty-five yards on the back, using a modified scissor-kick, arms extended, hands held in carry position.
- (5) Swim twenty-five yards, with the under-arm-side stroke, using the scissor kick and the right arm; the left arm held in carry position.
- (6) Swim fifty yards, breast, trudgeon, or crawl, pretending that you are pushing the helpless one in front or you.

## THE BREAK AND CARRY METHODS

The purpose of a break is to effectively release one's self from the grasp of a drowning victim. After the release, a correct carry is essential to bring the drowning person to a point of safety.

It is not necessary to use each particular carry with the release method given. Circumstances may not warrant this usage. For example, after breaking the wrist grasp, the carry method to be used would depend upon the drowning victim; if one violently struggles, use the side head carry; if subdued and calm, use the head or other carry methods listed. The reason for combining the rescue with the release drills is that it approximates the actual rescue featuring the most important break and carry methods.

### LAND DRILL

#### First Break or Release Method.

The starting position consists of the following commands: Line-up! Both lines towards each other—Face! Arms sideways—Raise! Arms—Position!

Line-up!

At the command Line-up! form according to height, in two straight lines, about two feet apart.

Both lines towards each other—Face!

Arms sideways—Raise!

At the command Raise!, adjust distance by raising the arms side-horizontal, palms down.

Arms—Position!

At the command Position! quickly bring the arms down to the side of the body and assume the position of attention; that is, the best possible standing position, heels together, toes turned out, forming an angle of about thirty degrees, the entire body erect, weight forward on the balls of the feet, knees extended, abdomen in, chest high, head erect, chin in, extended arms and hands at the side of the body.

**IMPORTANT NOTE.**—Each member of the first line will act as the rescuer, or number one; each member of the second line will act as the drowning person, or number two. At the end of the drill, reverse the order, number one acting as the drowning victim, number two, as the rescuer.

Wrists—Grasp!

At the command Grasp! number one raises the partially flexed arms, while number two firmly clasps number one by the wrist, with the thumbs in. Fig. 1, Page 123; Fig. 1, Page 135.

Break!

At the command Break! number one forcibly brings the arms down in front of the body, and continues the forcible arm swing to the side, breaking the grasp by applying force against number two's thumbs. Fig. 2, Page 123; Fig. 1, Page 129.

Body—Turn!

At the command Turn! number one grasps number two's wrist, right hand to right, and quickly turns number two's body away from him, then assumes the correct carry position. Fig. 3. Page 123; Fig. 4. Page 135. The object of grasping the wrist after the break is to protect one's self from further attacks, and also to maintain hold of the drowning person throughout.

**IMPORTANT NOTE.**—Practice the above drill by using the wrist grasp, thumbs out, and break the grasp by forcibly bringing the arms up and out, applying force against number two's thumbs.

### **First Carry or Rescue Method.**

Position for head carry—Take!

At the command Take! place palms of hands over number two's ears, fingers resting on lower jaw, raising mouth sufficiently to clear the imaginary water surface. Fig. 1. Page 139; Fig. 5. Page 129.

Position!

At the command Position! assume the best possible standing position.

Number twos about—Face!

At the command Face! turn on the heel of the right foot and the toe of the left, finishing with both heels together, and facing number one.

### **Second Break or Release Method.**

Starting position—Take!

Both lines face towards each other, properly spaced as described in the starting position of the first release method.

From the front, neck—Grasp!

At the command Grasp! number two grasps number one about the neck, fingers tightly clasped, arms extended. Fig. 4. Page 123.

Break position—Take!

At the command Take! number one firmly grips number two's arms, palms of hands supporting elbows. Fig. 4. Page 123.

Break!

At the command Break! number one quickly and forcibly breaks the neck grasp by raising number two's arms above his head and forcibly swinging them down to the right side. Fig. 5. Page 123; Fig. 2. Page 135. Immediately number one grasps number two's right wrist, turns victim away from him, and assumes correct carry position.

**IMPORTANT NOTE.**—The neck break may be also executed by the following methods:

(1) With the right hand gripping the victim's chin, thumb and forefinger holding the nose, the left hand gripping the elbow, quickly and



Life-Saving-Rescue and Resuscitation Methods. Fig. 1. Under arm carry. Fig. 2. Chest carry. Fig. 3. Side head carry. Figs. 4 and 5. Schäfer method resuscitation.

forcibly extend the right arm against the victim's chin, at the same time force the left arm up, maintaining hold of the victim's right arm; turn body in position for the carry.

(2) Place both hands on the victim's chest; quickly and forcibly extend the arms, thereby forcing yourself downward; maintain hold of one arm after the release; then quickly turn the body in position for the carry.

### **Second Carry or Rescue Method.**

Position for under arm carry—Take!

At the command Take! number one grips number two's upper arms, placing palms of hands near the arm pits. Fig. 2, Page 139; Fig. 1, Page 133.

Position!

Number twos about—Face!

### **Third Break or Release Method.**

The starting position is the same as described in the preceding drills.

Body—Grasp!

At the command Grasp! number two grasps number one around the body, taking care to bring his arms over those of number one, interlacing the hands at the rear. Fig. 1, Page 127.

Break position—Take!

At the command Take! number one firmly grips number two's arms, palms of hands supporting elbows. Fig. 1, Page 127.

Break!

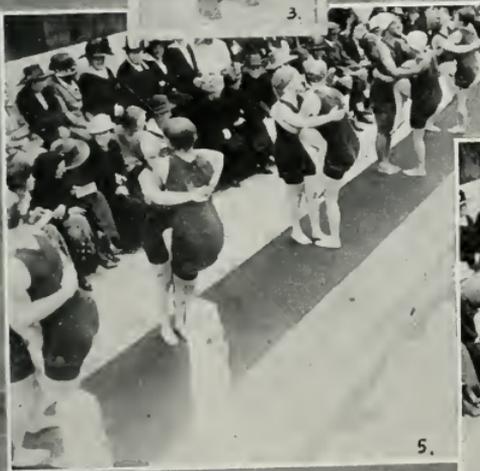
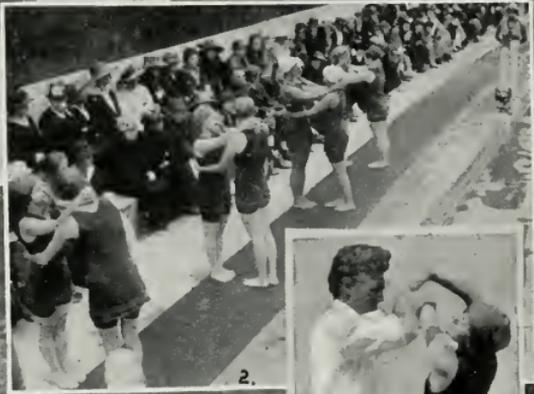
At the command Break! number one quickly and forcibly breaks the body grasp by raising number two's arms above his head and forcibly swinging them down to the right side. Fig. 2, Page 127; Fig. 5, Page 135; Fig. 2, Page 129. Then immediately number one grasps number two's right wrists, turns body away from him, then places victim's body in position for carry.

**IMPORTANT NOTE.**—Another method of executing the body break is as follows: Grip victim's chin with right hand, thumb and forefinger holding nose, left hand on shoulder, right knee against victim's abdomen. Break the grasp by forcibly extending the right arm and knee; maintain hold of one arm after the break and quickly turn body in position for carry. Fig. 5, Page 135.

### **Third Carry or Rescue Method.**

Position for side head carry—Take!

At the command Take! number one places the palm of his left hand on the victim's chin, with the fingers gripping the lower jaw, arm partially



Life-Saving Release Methods—Land Drills. Fig. 1. Wrist grasp. Fig. 2. Neck grasp. Fig. 3. Side Carry. Fig. 4. Body turn and hold after the release. Fig. 5. Body break. Fig. 6. Rear neck grasp.

flexed, body well over the hip; then number one assumes the side stroke swimming position, right arm extended. Fig. 3. Page 133.

Position!

Both lines about—Face!

#### **Fourth Break or Release Method.**

The starting position is as follows:

Both lines face in the same direction, number twos in the rear line.

From the rear, neck—Grasp!

At the command Grasp! number two grasps number one about the neck, finishing with the arms across number one's chest. Fig. 4. Page 127.

Break position—Take!

At the command Take! number one grasps number two's fingers or wrists, left hand grasping left, right hand grasping right. Fig. 4. Page 127; Fig. 6. Page 135.

Break!

At the command Break! number one separates number two's arms, at the same time quickly forcing back with the hips; then ducks down and out to the side from number two's grasp, maintaining hold of one arm; then quickly turns body in position for the carry. Fig. 5. Page 127; Fig. 3. Page 129.

**IMPORTANT NOTE.**—If it is extremely difficult to separate number two's arms, number one should then effect a break by turning the fingers back, then immediately grasp number two's wrists, in order to protect himself.

If the drowning victim entwines his legs around the rescuer's body or legs, he should release himself by bending the foot or toes back.

#### **Fourth Carry or Rescue Method.**

Position for the side chest carry—Take!

At the command Take! number one places left arm over number two's left shoulder and across the chest, finishing with the hand under number two's right arm; at the same time number one adjusts number two's body position by placing his hip under number two's body; then number one assumes the side stroke swimming position, right arm extended. Fig. 2. Page 133.

Position!

Number twos about—Face!

#### **Fifth Carry or Rescue Method.**

This carry is to be used when a person is temporarily handicapped by a cramp or greatly fatigued, although maintaining consciousness and possessing self-control.

Position for front carry—Take!

At the command Take! number two places both hands on number one's shoulders, near the neck. At the same time number one places his arms in position for the breast, trudgeon or crawl strokes; that is, front horizontal on the outside of number two's extended arms.

Double over-arm motion—Begin!

At the command Begin! number one takes two complete over-arm strokes as described in the swimming land drills. Fig. 4, Page 129.

Position!

## THE BREAK AND CARRY METHODS

### WATER DRILL

#### First Break or Release Method.

The starting position consists of the following commands:

Line-up! Arms sideways—Raise! Arms—Position!

Line-up!

At the command Line-up! form in two lines according to height, about the deep water end of the pool; number two, or the victim, stands with toes over the edge; number one, or the rescuer, stands directly in back of number two.

Arms sideways—Raise!

At the command Raise! adjust distance.

Arms—Position!

At the command Position! bring the arms down to the side of the body, and assume the correct standing position.

Number two on your mark—Go!

At the command Go! number two enters the water, using a shallow or racing dive, Fig. 3, Page 115, then swims towards the center of the pool and turns about awaiting the arrival of number one, now and then frantically raising the arms above the head, submerging the body, as though drowning.

Number one on your mark—Go!

At the command Go! number one enters the water using a racing or shallow dive.

#### 1. To the Rescue.

(1) Number one swims to the rescue of number two.

(2) *The Approach.* Upon the approach, number one raises the arms preparatory to assisting number two.

## 2. The Rescue.

- (3) *The Grapple.* As number one attempts to assist, number two grasps number one's wrist.
- (4) *The Break.* Number one breaks the wrist grasp as described in the land drill.
- (5) *The Hold and Body Turn.* Then number one maintains hold of number two's wrist, turns body away from him, and assumes the correct carry position. Fig. 4. Page 139.

## 3. Return With Rescued.

- (6) *The Carry.* Assume correct position for the head carry and swim back to the starting place, using the elementary back stroke, or a modified scissor kick. While carrying the victim, remember that the body must be in a horizontal position, mouth raised sufficiently to clear the water surface.
- (7) *Place Body Over the Edge of Pool.* Upon reaching the side of the pool number one places number two's arms and the upper part of the body over the edge of the pool, then applies force against number two's hips in the final effort of getting number two's body out of the water. Then the rescuer quickly climbs out, grasps number two's wrists and pulls the body over the edge.

IMPORTANT NOTE.—Practice the second, third, and fourth release and rescue drills in the water, following the form used in the preceding water drill. Repeat the entire drill, number ones acting as the drowning persons, number twos the rescuers.

## SCHÄFER METHOD OF RESUSCITATION

Number two's body in position for resuscitation—Place!

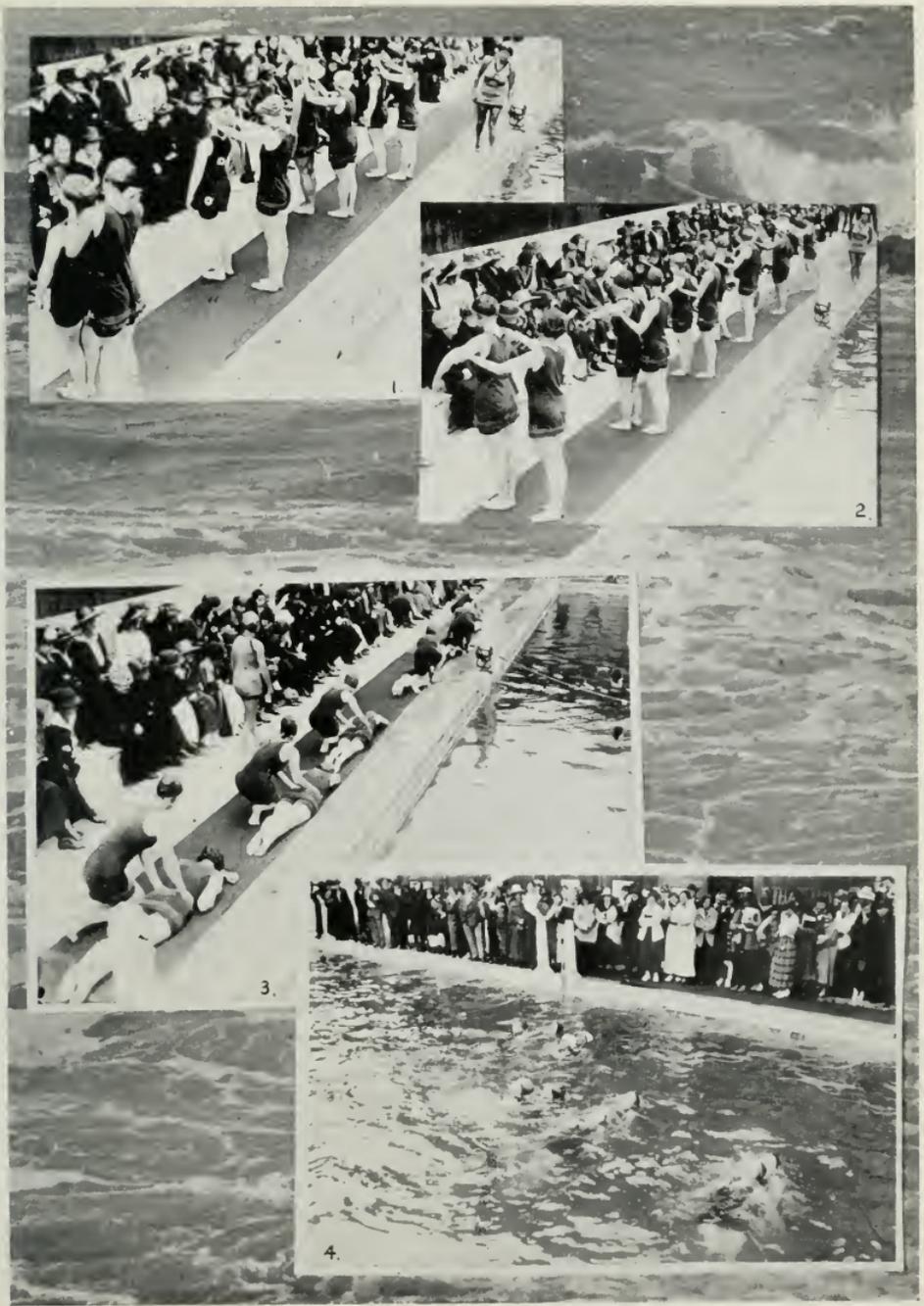
At the command Place! number one straightens number two's body, then places number two's right arm under the head as a support, turning the head to the left, taking care to have the mouth low; and place the partially flexed left arm above the head.

Number one, position for the resuscitation—Take!

At the command Take! number one kneels in a stride position over number two's thighs, placing the palms of the hands on the small of the back, thumbs about four inches apart, fingers separated and placed over the lowest ribs. Fig. 4. Page 133; Fig. 3. Page 139.

Press—One!

At the command One! the rescuer or resuscitator leans forward, exerting pressure, keeping the arms extended. This position should be held for the length of a normal exhalation, about two seconds. Fig. 5, Page 133.



Life-Saving Rescue and Resuscitation Drills. Fig. 1. Head carry. Fig. 2. Under arm carry. Fig. 3. Schäfer method of resuscitation. Fig. 4. Under arm carry.

"The abdomen being pressed against the ground forces the viscera against the diaphragm, which is thereby itself moved upward, driving air out of the lungs."

Release—Two!

At the command Two! the rescuer leans back slightly, quickly releasing pressure, while keeping the hands on number two's body. Fig. 4. Page 133. The position should be held for the length of a normal inhalation. "When the pressure is released, the elasticity of the parts causes them to resume their former shape and volume and air is drawn in through the glottis."

Counts One! and Two! constitute one complete resuscitating movement. Therefore the correct timing should be from twelve to fifteen complete movements per minute.

In practice repeat the resuscitation drill for about two minutes. However, in case of an actual drowning, this drill must be continued until life is restored, or for several hours.

Circulation—Increase!

At the command Increase! number one vigorously rubs number two's back, legs, and arms, taking care to rub towards the heart, thus accelerating the circulation.

Position!

At the command Position! both lines quickly assume a correct standing position. Repeat the entire drill, number one acting as the drowning victim, number two as the resuscitator.

Refer to instructors' note on life-saving, page 167.

We are grateful to our father, Dr. Sheffield, for his valuable suggestions given us on the subject of life-saving. He helped organize and acted as surgeon of the Venice Life-Saving Corps. He has also taught swimming and life-saving in several different countries.

### DR. SHEFFIELD'S METHOD OF RESUSCITATION

"First, place the suffocated person on the ground with one arm under his head as in the Schafer Method. Then stand astride him. Place your elbows between your knees, thus affording greater pressure to the hands, which should grasp the middle of the victim's side, thumbs pointing toward the spine and fore fingers following the lower ribs. Force down, in, and up for two or three seconds. Then release and catch under the patient's hip joints. Raise the body so that the ribs can swing forward for one or two seconds. Again release and repeat the entire process from ten to twelve times per minute.

My experience has proven this to be one of the best methods for restoring life."



An Actual Rescue. Fig. 1. The alarm. Fig. 2. Lowering the boat. Fig. 3. To the rescue. Fig. 4 and 5. Dr. Sheffield illustrating his method of resuscitation.

## DON'T

**Don't** get excited, because calmness of mind is at all times necessary, in accurately sizing up the situation.

**Don't** attempt rescue without first removing shoes and heavy outer clothing, because this would hinder progress and fatigue the rescuer.

**Don't** forget to keep watch of the victim or spot where last seen, as this aids in rescue.

**Don't** forget to jump feet first in unknown waters, because of the possible danger of diving into unknown objects.

**Don't** approach the victim with a fast jerky stroke, as this is exhausting and energy must be conserved for the rescue.

**Don't** if possible, approach victim from the front, because the drowning person may secure an unfavorable grasp.

**Don't** attempt rescue without some knowledge of the correct break methods, because this may mean two lives instead of one.

**Don't** attempt release by "knock-out" measures, because it may prove fatal to the victim.

**Don't** lose hold of victim immediately after the break is effected, as the victim may resume the struggle or disappear.

**Don't** attempt to bring a body to surface by pushing off the bottom if soft and muddy, as two lives may be imperilled.

**Don't** forget to employ the correct carry method, because this is necessary to insure the safety of the victim and rescuer.

**Don't** forget to keep the victim's body in a horizontal position during the carry, as this will prevent body drag and aid the rescuer.

**Don't** carry the victim in such a way as to interfere with breathing or submerge the mouth, as this may prove fatal.

**Don't** swim with a quick jerky stroke or attempt to "buck" the current, as this may prevent the rescue.

**Don't** forget to summon medical aid at once.

**Don't** lose time in getting the victim to a point of safety, as it is necessary to begin resuscitation as soon as possible, a few minutes may mean the loss of a life.

**Don't** use the pulmotor, as it has proven dangerous in the hands of the inexperienced.

**Don't** attempt resuscitation without first unfastening tight clothing, as this aids circulation and breathing.

**Don't** attempt resuscitation in a crowded and poorly ventilated place, as the victim needs all the fresh air possible.



Fig 1. George Freeth, world's champion surf board rider. Fig 2. George Freeth with his mile a-minute life-saving apparatus.

**Don't** attempt resuscitation without first straightening the body, placing the head and arms in correct position, clearing the mouth, as these measures are essential in resuscitation.

**Don't** apply pressure more than fifteen times per minute, as this is dangerous.

**Don't** forget to apply warmth immediately, as this is necessary in aiding the circulation.

**Don't** give up too soon, as it often requires from two to four hours of resuscitation to restore life.

**Don't** stop artificial respiration when the victim is breathing irregularly, as a relapse may follow.

**Don't** attempt massage by rubbing away from the heart, as it impedes circulation.

**Don't** give stimulants until normal respiration is established, and then only a teaspoonful at a time, otherwise this may cause choking.

**Don't** administer large doses of stimulants, as it may prove harmful.

## VII

## THE SAFETY-VALVE AND THE SWIMMING AND LIFE-SAVING TESTS

## 1. THE NON-SWIMMER'S SAFETY VALVE.

It is urged that the safety valve be copied and posted at every bathing center, as it will greatly minimize the needless accidents and fatalities which occur through ignorance.

**Don't** Venture Beyond Your Depth.

**Don't** Raise the Arms Above the Head, as this Sinks the Body.

(But pull for the shore, using the alternate arm and leg motion, or the so-called dog-paddle.)

**Don't** Get Excited when in Deep Water, but Float.

(That is, place the head back until the ears are covered, chin in, arms in side horizontal position, and if necessary use an alternate up and down leg kick.)

**Don't** Frantically Clutch Any One, but Float or Signal for Help.

**Don't** Forget that you can Keep Yourself Afloat by Breathing Deeply and Treading Water.

(Use an alternate up and down leg motion, like climbing up stairs, pushing down hard against the water, arms to side horizontal position, head back.)

**Don't** Forget That Such Object as an Oar, Log, or Clothes will Help Support You.

**Don't** Forget to Signal for Help When in Distress, by Repeatedly Raising and Lowering the Arm.

**Don't** Shout for Help, but Breathe Deeply and Signal by Raising and Lowering the Arm.

**Don't** Forget to Climb Over the Stern of the Boat, Never Over the Side.

## 2. THE SWIMMER'S SAFETY VALVE.

**Don't** Forget to Float or Swim on the Back when in Danger or Doubt.

**Don't** Get Excited when Seized with a Cramp, but Float, or Swim on the Back.

**Don't** Frantically Raise the Arms Above the Water, but Pull for Shore.

**Don't** Get Excited, if the Body is Temporarily Submerged. Place the Head Back and Scull to Surface.

**Don't** Get Excited When Clutched by Another, but Free Yourself by the Release Methods Used in Life-Saving.

**Don't** Attempt Long Distance Swimming Unless Accompanied by Swimmers or Boat.

**Don't** Forget when Caught in a Current or "Rip-Tide" to be Calm, and Swim with the Current.

**Don't** Struggle when Caught in the Undertow.

(Recede with it until the next wave is met, then coast in on it or swim with it or the following ones.)

**Don't** Swim, if Suffering from Heart Trouble, without Consulting a Doctor.

**Don't** Attempt Swimming for at Least One Hour After Eating.

**Don't** Dive Into Unknown Waters, but Jump Feet First.

**Don't** Foolishly Rock a Boat or Canoe, or Change Seats.

**Don't** Forget to Signal when in Distress, by Raising and Lowering the Arm.

**Don't** Fail to Learn the Important Release, Rescue, and Resuscitation Methods.

### 3. THE RESCUER'S SAFETY VALVE.

**Don't** Attempt a Rescue Without Some Knowledge of Life-Saving. (It may mean two lives instead of one.)

**Don't** Fail to Recognize the Signal of Distress.

(As victim raising and lowering the arm, body disappearing and reappearing, etc.)

**Don't** Forget to Determine Quickly but Calmly the Best Method of Rescue and Act Accordingly.

**Don't** If Possible, Approach Drowning Victim from the Front.

**Don't** Attempt Release by "Knock-Out" Measures, it May Prove Fatal.

**Don't** Forget to Maintain Hold of Victim Immediately After the Break.

**Don't** Forget to Employ the Correct Carry Methods and Conserve Strength.

**Don't** Forget to Commence Resuscitation At Once, a Few Minutes May Mean the Loss of a Life.

IMPORTANT NOTE.—The signal of distress, that is, the repeated raising and lowering of one arm, should be universally adopted by the non-swimmer, swimmer and rescuer. Any one giving this signal in fun should be penalized.

## THE SHEFFIELD SWIMMING AND LIFE-SAVING TEST

The object of this test is, first, to stimulate a greater interest in swimming, diving, and life-saving; second, to emphasize the necessary progression in learning each of these activities; third, to standardize swimming, diving, and life-saving.

Leading educators realize the growing demands for instruction in swimming and life-saving in our educational institutions and also the necessity of requiring a swimming and life-saving test as one of the graduation requirements.

The following test is arranged to meet the demands of schools, clubs, and playgrounds. However, the application of the test depends upon the discretion of the instructor and the ability of the swimmer.

### THE BEGINNER'S SWIMMING TEST

	Maximum Points	Points Awarded
1. Correct rhythmic breathing, turning and submerging face 20 times .....	1	
2. Face submerge floating; hold second position five seconds, and regain standing position.....	2	
3. Face submerge push-off, 15 feet; regain standing position .....	2	
4. True floating; hold position five seconds; regain standing position .....	2	
5. Side-push-off; regain standing position.....	2	
6. Change body positions, back, side, and face.....	3	
7. Back-push-off, 10 feet; regain standing position.....	2	
8. Advance floating positions, arms vertical, on neck, at side .....	3	
9. Swim a correct elementary back stroke or preliminary crawl 20 yards, if possible in deep water.....	4	
10. Swim the correct Sheffield sculling stroke or the side stroke 20 yards, if possible in deep water.....	4	
Total .....	25	

### THE INTERMEDIATE SWIMMING TEST

1. Swim a correct side stroke, 25 yards.....	5	
2. Swim a correct single over-arm-side stroke, 25 yards....	5	
3. Swim the trudgeon with a correct coordination, 25 yards	5	
4. Execute part one, Rudiments of Diving.....	4	
5. Execute part two, Elementary Diving .....	6	
Total .....	25	

## THE ADVANCED SWIMMING TEST

	Maximum Points	Points Awarded
1. Swim a correct trudgeon, 50 yards.....	4	
2. Swim a correct trudgeon crawl, 50 yards.....	3	
3. Swim a correct crawl, 50 yards.....	5	
4. Swim a correct alternate racing back or breast stroke, 50 yards . . . . .	3	
5. Execute a correct racing turn . . . . .	2	
6. Execute a plunge for distance, 35 feet . . . . .	1	
7. Execute part three, Advanced Diving—running swan dive . . . . .	4	
8. Execute part three, Advanced Diving—back dive.....	3	
Total . . . . .	25	

## THE LIFE-SAVING TEST

1. Execute motionless floating for at least one minute.... (If one is unable to execute horizontal floating, that is if the body displacement is heavier than water, use a sculling arm motion or crawl kick).	1	
2. Tread water for at least two minutes..... (If desired one may also use a sculling arm motion.)	1	
3. Dive or jump from a five or ten-foot platform, swim 25 yards. Side stroke, upper arm held in carry position . . . . .	1	
4. Execute shallow dive and swim 25 yards on the back, arms held in carry position . . . . .	1	
5. Swim 25 yards, dressed, undress and continue swimming 50 yards . . . . . (Wearing apparel should consist of shoes, waist or coat, skirt or trousers.)	4	
6. Surface Dive, locating and recovering object..... (1) Swim 25 yards, execute surface dive in deep water and bring up a six-pound object, continue swimming with object on hip 10 yards. (2) Execute a shallow dive and swim under water from 10 to 30 feet.	4	
7. Execute the following breaks while in deep water..... (1) Wrist grasp. (2) Front neck grasp. (3) Body grasp. (4) Rear neck grasp.	5	

	Maximum Points	Points Awarded
8. Execute the following carry methods while in deep water	5	
(1) Head carry, 10 yards.		
(2) Under arm carry, 10 yards.		
(3) Side chest carry, 10 yards.		
(4) Side head carry, 10 yards.		
(5) Cramp carry, 10 yards, executed with trudgeon, crawl or breast stroke.		
9. Place victim's body over edge of pool or bank preparatory to resuscitation .....	1	
10. Execute Schäfer method of resuscitation.....	2	
Total . . . . .	25	

## VIII

## WATER SPORTS

Water sports afford a varied source of amusements, and also stimulate greater interest in swimming and life-saving. A series of games have been arranged applicable to all ages, and progressing from the elementary team games to the advanced sports of water volley ball, baseball, basketball and water polo. In addition to inter-class, inter-scholastic, club and playground competitions in swimming and life-saving, contests could be held in any of the elementary team games listed, thereby offering to the majority an opportunity for organized competitive play.

## NOVELTY RACES

**Umbrella Race.**

The contestants possessing open umbrellas or other objects, line up in the deep water end of the pool. At a signal, the swimmers push away to the opposite side, using the under-arm-side stroke and carry the umbrella above the water. The first swimmer arriving at the finish wins.

This novelty race is of value because it employs the side carry used in life-saving.

**Candlestick Race.**

The participants line up about the deep water end of the pool, robed in night dresses and caps. At a signal, participants dive into the water, swim to the opposite side of the pool where candles and matches have been placed. The swimmers quickly light their candles and swim back, holding them out of the water with both hands. The first swimmer to reach the starting place with the lighted candle wins.

This novelty race employs the back stroke carry used in life-saving.

**Disrobing Race.**

The swimmers line-up at the deep water end of the pool dressed in old clothes consisting of waist or coats, skirts or trousers, shoes and hats. At a signal, participants dive into the water, swim twenty yards, disrobe, and continue swimming at least twenty yards or the length of the course.

**Life-Buoy Race.**

The contestants sitting in life-buoy arrange themselves at the starting place in the deep water end of the pool. At a signal, they push away, and

propel themselves through the water, using a paddle motion with the arms. The first swimmer to reach the finish line without upsetting, wins.

### **Barrel Race.**

Each swimmer strides a small barrel and lines up at the deep water end of the pool. At a signal, the contestants paddle and kick. Any one tipping over must mount the barrel and continue paddling to the finish line.

### **Tub Race.**

Contestants hold on to the edge of the pool and assume a sitting position in the tub. At a signal, they propel themselves forward by a paddling or scooping arm motion. If the swimmer tips over he must right himself and continue swimming to the finish.

### **Obstacle Race.**

The swimmers line up and at a signal dive into the water and swim fifty yards, going over or through the various obstacles placed in the course, such as life-buoys, barrels, hoops, turning somersaults over a rope, etc.

### **Spoon and Peanut Race.**

The participants hold on to the edge of the pool, place the handle of the spoon between the teeth, with a peanut in the spoon. The first to reach the finish with the peanut in the spoon, wins. Swimmers losing their peanuts are disqualified.

### **Duck Chase.**

Place a duck in the pool about twenty-five yards from the line-up. At a signal, swimmers dive in and attempt to catch the duck.

## **RELAYS**

### **The Seal Stroke or Dog Paddle Relay for Children.**

For this relay the participants are divided into four equal groups. Groups A and C are lined up on one side of the tank, groups B and D are lined up on the opposite side. Groups A and B comprise one team, competing against groups C and D. At a signal, the first contestants of groups A and C enter the water, swim to the opposite side of the tank. Upon touching the side, leaders of the groups B and D enter the water and swim to groups A and C. When a contestant touches the opposite side, he should

climb out and go to the end of the line. The swimming continues until all of the contestants of groups A and C have changed places with those of groups B and D. The two groups or teams which complete the exchange of places first, win. Any number of groups may be formed, depending upon the number of players.

### **Simple Relay.**

The simple relay is the same as the preceding one except that speed strokes are substituted for the Seal Stroke or Dog Paddle.

### **Touch and Turn Relay.**

For this relay the contestants are formed in four (or more) equal groups, lined up on one side of the tank. At a signal, number one of groups A, B, C, and D enter the water, swim to the opposite side and return. As soon as number one of each group touches the side of the tank, number two dives into the water. Number one then jumps out and goes to the end of the line. The team wins whose last contestant touches the starting place first.

### **Varied Stroke Relay.**

This relay is similar to the preceding one except that two or more different strokes are used during the swimmer's course.

## **GAMES**

### **Cross Tag.**

The one who is "it" starts the game by naming a player, then swims after him until he is tagged, or until some other player swims between the person who is "it" and the one who is being chased. When this occurs, the one who is "it" must pursue the one who crossed between them. If the one pursued is caught before another player recrosses his path, he becomes "it," and the game continues.

### **Ball Tag.**

Swimmers may play in either the shallow or deep water end of the pool. The one who is "it" starts the game by throwing the ball, attempting to hit one of the players.

The player who is hit by the ball in turn becomes "it." Players may walk, swim or dive in the water to avoid being hit.

**Hold Tag.**

This game may be played in either the shallow or deep water end of the pool. The one who is "it" walks or swims after the players, attempting to tag them. The player tagged, must place the left hand on the spot where he was touched and holding this position, attempt to tag some one else.

**Third Frog in the Puddle.**

Players form in a double circle, couples facing each other in the shallow end of the pool, then choose one of the players to be "it," and one to be chased. The one that is to be chased may walk or swim around or between the players, and is free from being tagged when he stands between the two players of any couple, and then the one who is "it" must attempt to tag the one towards whom the chased player turned his back. The one who is tagged becomes "it," and should tag the one who caught him if possible. Short and quick changes are necessary to make the game exciting.

**Follow the Leader.**

The players choose a leader, who performs a series of stunts. The rest of the players must imitate the leader. When one of the players fails to perform the stunt given, he must drop out. The game continues until the leader has executed all of his stunts, then a new leader is chosen.

**Take Away.**

The swimmers choose sides and may play in the shallow or deep water end of the pool. The object of the game is for one side to take the ball away from the other.

**Fox and Ducks.**

Choose a player to be the fox, another to be the mother duck. The other players are little ducks which form in a line behind the mother duck, each one holding the waist of the one in front of him. The fox attempts to catch the last duck. The line led by the mother duck turns in various ways to protect the last little duck from being caught by the fox. When the last duck is tagged he becomes fox and the fox becomes the mother duck.

**Neptune's Call.**

This game may be played in the deep or shallow end of the pool, with the players lined up on one or both sides. The one who is "it" stands or

treads water in the center of the pool. When he shouts, "Neptune's call, come one and all," the players must swim to the opposite side, and he tries to tag as many as he can. All of the players that are tagged must remain in the center and assist in capturing the others until all are caught. The player who was caught first is "it" for the next game.

### **Dodge Ball.**

The players choose sides. Group one forms a large circle around group two in the shallow end of the pool. The outside circle has one or two volley or water polo balls, with which they attempt to hit the players. The players within the circle may walk, swim or duck under the water to avoid being hit. As soon as a player is hit with the ball he must join the circle and assist in hitting the players within the circle. When all have been hit the groups change places and repeat. The last two players who were hit in the two games are captains to choose up for the next contest.

### **Bat Ball.**

This game may be played in the shallow or deep water. Mark a home base at one end of the pool, and mark a second base about 40 feet away. The players form in two equal teams, one at bat behind the home base line and the other covering the field as completely as possible. A volley or water polo ball is used. The batter tosses the ball up and bats it with his fist. When a fair ball is hit, that is in the playing space, and in front of the home base line, the batter must swim to the pole or second base and return to the home base line. Fielders try to put the runner out by hitting him with the ball or catching a fly ball, but they must not swim with the ball, they must pass it to other fielders who are near the batter. When a fielder swims with the ball the opposing side is awarded a point. A point is also made after the batter touches second base and returns to home base without being hit. Batters are permitted to duck under water to avoid being hit. Fielders and batters change places when three outs are made.

### **Punch Ball.**

Mark out a small baseball diamond in the shallow end of the pool or use stationary floats for bases.

Choose two teams of nine or ten players each, as in baseball, and have one team at bat and the other in the field. The catcher stands opposite the batter and must toss the ball up above the batter's head; as the ball comes down, the batter hits it with his fist, then swims to first base, if the ball hits inside the diamond. The fielders catch the ball on the fly, or

get it as quickly as possible and return it to the catcher. If the catcher is standing in his position and has the ball in his hand while a baseman is walking or swimming between bases, the base runner is out. The basemen are not permitted to advance from a base until the batter hits a fair ball. A run is scored when the batter touches first, second, third and home bases. Batters and fielders change places when three outs are made.

### **Over the Top.**

This game should be played in the shallow end of the pool and in a space with definite boundaries. Stretch a rope or net across the playing space about four feet above the water. Two captains choose their teams of equal numbers. The teams line up one at each side of the rope or net. The object of the game is to throw the ball over the rope so it will strike the water in the opponents' half of the court. The opponents try to catch the ball before it touches the water and throw it back. If the ball hits the water in the opponents' territory, it is a score for the side throwing it. A foul ball is one that hits the rope (or net), goes under the rope, or is thrown outside of the opponents' court in any direction, without the opponents touching it. A foul scores a point for the other side. The team having the largest score at the end of the playing time wins the game. Over the Top or volley ball may also be played in deep water with the rope or net four feet above the water surface.

### **Water Volley Ball.**

Stretch a rope or net across the shallow end of the pool and about four feet above the water. Players form in two equal groups on opposite sides of the rope. A water-polo or volley ball is used. The object of the game is to bat the ball over the rope with open hands, using one or both hands. One player starts the game by "serving," that is, he stands at the back of the court, tosses the ball up, and then bats it upward and over the net. His team mates watch the ball, and if necessary help bat it over the net, but no player is allowed to bat it twice in succession. If the ball goes over the net without touching it must be batted back by the opponents. The ball is in play as long as it is batted back and forth across the net. The ball is out of play and must be started again by serving when one side fails to return it, whether by letting it hit the water, batting it in the net or batting it outside the court. The side failing to return the ball at any time when it is in play loses a point. If the serving side loses a point, they lose the right to serve, and the ball goes to the opponents. If the other side loses (serving side winning) it counts one score for the serving side. Only the serving side scores, the other side tries to win the points and thus earn the right to serve. Fifteen points make a game,

unless it is a tie finish, or fourteen all; in that case the winning side must score two additional points over the opponent.

### **Water Base Ball.**

Mark out a small baseball diamond in the shallow or deep water end of the pool, or use stationary floats for bases. The game is then played according to indoor baseball rules, except that a water-polo, volley or tennis ball is used, and the batter hits the ball with his fist.

### **Water Basket Ball.**

This game should be played in shallow end of the pool and according to the official basket-ball rules.

### **Water-Polo.**

This game is one of the most exciting and difficult of the team games. For particulars refer to the official water polo rules.

## IX

## SUGGESTIONS TO INSTRUCTORS

The object of Chapter IX is to simplify the teaching method for mass instruction. A few suggestions pertaining to the exercises and drills are given.

**Preliminary Land Drill.**

The object of this land drill is to line up the class about the pool, properly spaced, in readiness for the land drill that is to be given.

Line-Up!

At the command Line-Up! arrange the class in any number of straight lines desired, according to height, depending upon the size of the class and space available.

Arms front horizontal—Raise!

Arms side horizontal—Raise!

At the command Raise! have the class adjust their distance by raising the arms to front horizontal or side horizontal, depending upon the space needed and the stroke used.

In adjusting the distance forward raise the extended arms to front horizontal position, shoulder width apart, palms facing towards each other, chest out, head up. In adjusting the distance sideways, raise the extended arms to side horizontal position, palms down.

Arms—Position!

At the command Position! have the class quickly bring the arms down to the side of the body.

Class—Attention!

At the command Attention! have the class assume the best possible standing position; heels together, toes turned out forming an angle of about thirty degrees, the entire body erect with the weight forward on the balls of the feet, knees extended, abdomen in, chest high, head erect, chin in, arms and hands at the sides of the body.

Too much stress cannot be laid upon the necessity of giving posture training throughout all of the swimming drills. For the trained teacher of physical education it is merely a matter of application.

In place—Rest!

At the command Rest! have the class place the left foot to the side, weight on both feet. This serves as a rest position while the instructor is explaining a drill.

### **Preliminary Water Drill.**

The object of this drill is to line up the class around the edge of the pool, properly spaced, in readiness for whatever drill may follow.

Line-Up!

At the command Line-Up! have the class assume a correct standing position around the edge of the pool.

Arms side horizontal—Raise!

Arms—Position!

Diving position—Take!

At the command Take! have the class assume a sitting, kneeling or standing position, as the case may demand preparatory to entering the water.

### **Application of the Preceding Water Drill.**

The following illustrates how the preliminary water drill can be applied as a class exercise demonstrating correct breathing for beginners. A similar water drill may be worked out for any of the exercises or drills given in swimming or diving.

Line-Up!

At the command Line-Up! have the class assume a correct standing position around the edge of the pool.

Sitting position—Take!

At the command Take! have the class assume a correct sitting position around the edge of the pool, feet placed in the water or on the railing, extended arms covering the ears, thumbs locked, chin in, body bent forward.

Inhale!

At the command Inhale! have the class take a deep inhalation through the mouth, then close it.

Dive—In!

At the command Dive—In! or when the whistle blows, have the class enter the water, submerging the entire body.

Railing—Grasp!

At the command Grasp! have the class grasp the railing or side of the tank by means of the overhand grasp, arms extended, shoulders submerged.

Starting position for breathing—Take!

At the command Take! have the class assume the correct starting position for breathing, as described in the text.

Inhale!

At the command Inhale! have the class take a deep inhalation through the mouth.

Exhale!

At the command Exhale! have the class exhale through the nose under water. Practice this exercise until it is perfected.

### THE CORRECT USAGE OF COMMANDS

The following few suggestions as to how to give commands and interpret the text will prove helpful. The commands are necessary in mass instruction as a means of securing unified efforts and quick response.

Most commands are composed of three parts; as,

(1) The descriptive or explanatory part which should inform the class of what is to be done.

(2) Following the descriptive part should come a pause, in order that the class may think or visualize what is to follow. The length of the pause is determined by the simplicity or complexity of the command and the rhythm desired.

(3) The executive part of the command is that part which demands immediate execution or implies immediate action.

The following are examples of each of the above described parts:

(1) Left knee upward—Bend!

The descriptive part of this command is Left knee upward; this gives the class an idea of what is to move and where. There are a few exceptions to this rule, as Line—Up! or Class—Attention! Once these differences are explained, it will not prove difficult.

(2) Left knee upward—Bend!

The pause after the word upward should be long enough to give the class a chance to comprehend what has been said. When the command Line-Up! is given as one word, it implies the descriptive and executive part of the command. Usually a whistle is blown first to command silence and attention, then the command Line-Up! is given, and is executed at once.

(3) The executive part of the command indicates when the exercise shall take place. It may be formed in either of two ways:

First, the verb may be used at the end of the command; as—Left knee upward—Bend!

Second, the verb may be placed at the beginning of the descriptive part of the command and the numbers One! or Two! etc., used as an executive part; as—Bend left knee upward—One! When the latter is used the instructor should not repeat the descriptive part of the command but substitute the word One! Two! etc.

The following suggestions regarding the importance of the voice in giving commands cannot be over emphasized. The descriptive part of the

command must be enunciated clearly in order that the class may hear, and in about the same tempo as ordinary conversation.

The time or length of the pause varies with the simplicity or complexity of the exercise and the rhythm desired.

The command of execution should be given in varied quality, intensity, and inflection of voice, depending upon the exercise. A quick movement would demand a short, snappy command of execution, ending with a somewhat rising inflection of voice. A slow movement would demand a slow command of execution, ending with a somewhat falling inflection of voice. Thus it is noticed that the rhythm of a command is indicated by the voice. The elementary back stroke is used to illustrate.

Up easily, inhale—One!

Out easily, inhale—Two!

The commands of execution of One! and Two! should be given slowly and with a falling inflection of the voice.

Down forcibly, exhale—Three!

The command of execution Three! should be given quickly and with a rising inflection of the voice.

Hold, exhale—Fourth!

## THE METHOD OF PROCEDURE IN LEARNING OR TEACHING SWIMMING

In teaching children make their swimming, imitative story play. By this method the child will unconsciously overcome the fear of the water and learn to swim through play.

### THE BEGINNER'S FIRST LESSONS

#### 1. **First Steps in Overcoming the Fear of Water.**

#### 2. **Learning to Breathe Correctly.**

The land drills for overcoming the fear of the water and learning to breathe correctly require home practice until they are perfected. Before assigning these exercises to the class, the instructor should illustrate, using a bowl of water.

#### 3. **Body Balance.**

##### EXERCISE 1. FACE-SUBMERGED-FLOATING—FIRST POSITION.

When a railing is not available in the pool, lake or river, execute this drill in shallow water, pupils facing towards the shore or shallow end of the tank and with the hands on the bottom.

## EXERCISE 4. FACE-SUBMERGED-FLOATING—SECOND POSITION.

The instructor should emphasize the importance of this drill as a means of proving the natural body buoyancy when the lungs are inflated and the head is submerged. This is one of the most important means of inspiring the beginner with confidence.

If horizontal floating proves difficult, have the individual assume sitting position by grasping the knees, then take a deep breath, and submerge the face.

## EXERCISE 5. FACE-SUBMERGED-PUSH-OFF.

Having learned the preceding drills, too much stress cannot be laid upon this exercise, for it is really the first attempt in learning to swim, that is the body in motion. If one is teaching in a lake, river, or pool without a railing, secure a firm footing on the bottom of the pool, preparatory to the push-off. Then push away, gliding forward towards the shore.

If after two or three attempts the majority of the class are timid in executing this drill, have the class assume correct starting position, and number off in twos. Number ones take eight steps forward, about face. Number twos assume a starting position for the push-off. Upon the command or signal, number twos push away, and number ones stand by to assist when necessary. Then reverse the order. This will often instill the novice with greater confidence.

## EXERCISE 8. ATTAINING STANDING POSITION FROM TRUE FLOATING.

If part of the class finds difficulty in executing exercise eight, the following suggestions will prove helpful: Have the class number off in twos. Number ones assume the starting position for this drill; number twos stand at the side of number ones ready to give assistance in forcing the head forward to the face submerged position *only* when needed. Then reverse the order.

## EXERCISE 9. TRUE FLOATING—SECOND POSITION.

The instructor should emphasize the importance of this drill as a means of acquiring body balance while on the back, which is true floating.

Those who find floating difficult, and especially men whose body displacement is heavier than water, should use either of the following methods:

- (1) Raise the arms to vertical position, back of hands resting on water surface.
- (2) If this is not sufficient, use an alternate up and down crawl kick.
- (3) Or use a sculling arm motion.

**EXERCISE 11. CHANGING BODY POSITIONS.**

This exercise is a means of inspiring the beginner with confidence when required to pass the deep water swimming test. It is often necessary to change from one position to the other when swimming.

It will be found helpful in teaching a large class in a limited space to have them number off by twos. Number ones assume the face-submerged push-off position; inhale, submerge the face; glide; then turn over on the back; hold this position for at least five counts. While number ones are doing this, number twos should assume the correct starting position, then as number twos push off, number ones will return to their places and repeat the drill if necessary. This might be utilized for all of the body changes.

**EXERCISE 12. BACK-PUSH-OFF.**

Refer to the instructor's note given under exercise five and if necessary apply it to this drill.

**ANALYSIS OF THE VARIOUS SWIMMING STROKES.**

These general suggestions which apply to all strokes will aid the instructor in class management:

(1) Follow carefully the progressive steps for teaching and learning the stroke which precede each lesson.

(2) During the water drills have the class assume the correct starting position, properly spaced about the pool, in order that each pupil may have ample room to execute the drill. For large classes with a limited water space, have the class practice the water drills swimming in their line of direction; that is always keeping to their right.

(3) The motion picture land drill conveys the idea of swimming; that is, the body in motion. It also emphasizes the pull drive which is the propelling power of the stroke.

**THE ELEMENTARY BACK STROKE**

Before permitting the class to swim with the arms alone, review exercises ten and thirteen of Chapter 11. Before permitting the novice to take the deep water test in the back stroke the following precautions are necessary.

(1) Swim across the shallow end of the pool using a correct arm motion.

- (2) Swim across the shallow end of the pool using a correct leg motion.
- (3) Swim across the shallow end of the pool using a correct arm and leg motion.
- (4) After swimming across the width of the pool, have the student grasp the railing with one hand, about face, assume the back push-off position, and continue swimming.

### THE SHEFFIELD SCULLING STROKE

The mastery of this stroke inspires the beginner with greater confidence and is another means of resting the body. In teaching the sculling stroke have the class swim across the shallow end of the pool, arms alone, legs alone, and then the combination.

Then have the class start from the back-push-off and practice swimming across the shallow end of the pool with two elementary back strokes and alternate with two Sheffield sculling strokes. Also try out various combinations of both strokes. After practicing these two strokes as described above, the novice is prepared to take the deep water test with absolute safety and confidence. As an emergency measure warn the beginner before taking the deep water test to float or scull, if he becomes exhausted or frightened; or to swim either stroke, arms and legs alone or the combination. Also warn the beginner against raising the arms above the water as this tends to sink the body. And in case the body is temporarily submerged, one will come to surface by placing the arms in the side horizontal position, and pressing the head back, chin in. Or if one does not float easily, to hasten coming to the surface, push off the bottom or use a sculling arm motion, pushing down hard against the water, head low.

### THE UNDER-ARM-SIDE STROKE

Emphasize the importance of the side-push-off as a means of learning to balance and control the body in the side position. Chapter II. Exercise ten. The further advantage of learning the back strokes previous to the side stroke is, that it aids the novice in taking the side stroke deep water test, and the change from the back to the side is very slight. As a safety-first measure preparatory to taking the deep water test, have the novice pass this test in shallow water. Start from the side-push-off; swim

a few strokes on the side; then change the body position and swim a few strokes on the back; again return to the side position and finish, swimming a few strokes on the side.

### **SINGLE-OVER-ARM-SIDE STROKE**

It is well to caution the class always to keep the hand of the recovering and relaxed upper arm close to the water, and not to start the pull until a correct catch position is assumed. This will make it much easier to perfect the stroke. Also follow carefully the progressive steps in learning or teaching the strokes.

### **THE DOUBLE-OVER-ARM OR TRUDGEON STROKE**

Carefully follow the text in all details, paying particular attention to the correct timing of the inhalations, also the correct coordination of the stroke.

It has been found helpful for the novice in learning the double over arm recovery to slightly depress the shoulder of the pulling arm, which elevates the shoulder of the recovering arm. This method requires a less expenditure of energy during the recovery, thereby diminishing fatigue, aids one in acquiring the correct stroke, and at the same time it does not noticeably increase the resistance.

### **THE TRUDGEON CRAWL**

Emphasize the following points: (1) Diminished body roll. (2) Diminished shoulder depression. (3) Limit the scissor kick to about eight inches. (4) Intercept the scissor kick with a two beat crawl. (5) Turn the head slightly to the left for the inhalation.

### **THE PRELIMINARY CRAWL**

If one is teaching children or individuals desiring to learn the crawl first, too much stress cannot be laid upon the importance of first mastering Chapter II as a means of inspiring the beginner with confidence and learning body control.

Do not try to make the stroke technical, simplify as much as possible. This is especially necessary for children. Insist upon a noticeable body

roll, which necessitates the correct rhythm for the leg kick; that is, while the right arm is pulling the left leg kicks and vice versa.

Teaching the crawl with the surf-board is not practical for class work, but is an excellent method of procedure for the individual.

### THE CRAWL

In teaching the crawl emphasize the following points: (1) a slight body roll. (2) Decrease shoulder depression. (3) During the inhalations the head should be turned but slightly to the left; and during the exhalations the face should be submerged. (4) Warn against a pronounced knee and ankle flexion; and the feet coming out of the water. (5) Pay particular attention to the correct timing or coordination of the stroke.

### THE RACING BACK STROKE

In teaching the racing back stroke emphasize the position of the arms during the catch, pull, and recovery of the stroke. Also caution against noticeable knee and ankle flexions. In other respects this stroke is like the crawl.

### THE BREAST STROKE

In teaching the breast stroke emphasize the following points: (1) While practicing the second land drill, arm motion, it is not necessary to have the legs extended over the edge of the pool. (2) Follow very carefully the progressive steps in learning or teaching the stroke as given in the text. (3) While learning the stroke insist upon a slight hold or rest after the fourth count. (4) For racing purposes omit the hold at the end of the fourth count. (5) Warn the pupils against using a semi-scissor kick while swimming the breast stroke.

### THE RACING TURN

In executing the turn correctly, emphasize the importance of a quick and forcible upper arm swing, at the same time, scooping forward with the under arm in order to push the body back near the wall, finishing with arms in front horizontal position, palms down. Then quickly push away.

## DIVING

In teaching diving to the novice emphasize the following:

- (1) Inspire the beginner with confidence.
- (2) Follow carefully the progression given in Rudimentary and Elementary Diving.
- (3) Caution the beginner to keep the head down and body bent forward until the body is submerged, otherwise a flat dive would result.
- (4) Insist upon the beginners executing a deep dive close to the starting place.
- (5) Warn the beginner against arching the back quickly when coming to surface, as a severe strain may result.

The following suggestions are helpful in teaching advanced diving:

- (1) Insist upon the diver getting a good spring thereby gaining the maximum height.
- (2) Insist upon correct form when diving for the start, mid-air, and finished positions.
- (3) A land spring board is essential in teaching the novice how to work the board.
- (4) As a practical safety-first measure, the suspended harness or belt is used in connection with the land spring board in teaching advanced diving. This suspended harness is the same as that used in the gymnasium for that purpose.

## LIFE-SAVING

In teaching the various life-saving drills the best results are obtained by having the class practice one break and carry method at a time and then apply it in the water. After this is learned proceed to the next, until all are mastered. The instructor should carefully analyze each land and water drill, and discuss its application in an actual rescue. In giving an effective and realistic demonstration of the various release and rescue methods in the water the resuscitation drill need not come until after the last drill.

## THE SWIMMING AND LIFE-SAVINGS TESTS

The application of the swimming and life-saving test does not require that the instructor follow the order given. Any part of the test may be

passed at any time and the individual awarded accordingly. However, it is urged that the maximum of one hundred points be the final goal.

As a means of stimulating a greater interest and encouraging each boy and girl to become a swimmer and life-saver, awards should be given. The nature of the honor will depend upon the system of awards used in each particular school, club, or playground. It is suggested that the awards be graded according to the beginners, intermediates, advanced and life-saving test. Those passing all of the tests should be given the highest award.

### WATER SPORTS

These games should not only be used for competitions, but may be used as warming-up exercises and as a means of stimulating greater interest in swimming through play.

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